U-matic SP

VIDEO CASSETTE RECORDER

VO-9850

SONY®

SERVICE MANUAL

SPECIFICATIONS

System

Recording system	Rotary 2-head helical scan Luminance: FM recording Color signal: converted subcarrier direct recording
Video signal system	EIA standards, NTSC color

Video

Inputs	VIDEO IN (BNC type) × 2 1.0 Vp-p±0.3 Vp-p, 75 ohms, unbalanced, sync negative DUB IN (7-pin) ×1
Outputs	VIDEO OUT (BNC type) × 1 1.0 Vp-p±0.2 Vp-p, 75 ohms, unbalanced, sync negative TV (8-pin) x 1 DUB OUT (7-pin) × 1 MONITOR VIDEO (BNC type) × 1
Horizontal resolution	SP mode recording: 330 lines (both B/W and color)
S/N	SP mode Color: more than 46 dB Luminance (Y): more than 48 dB Conventional format more than 46 dB (color)
Subcarrier input	SC IN (BNC type) × 1 1 Vp-p (0.5 to 3 Vp-p), 75 ohms, unbalanced
Sync signal input	SYNC IN (BNC type) × 1 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	(BNC type) × 1 0.5 (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
Recording level control	Automatic and manual

Audio

Input	AUDIO LINE IN CH-1/L. CH-2/R (XLR 3-pin female) × 1 each +4 dB, 10 k ohms, balanced MICROPHONES CH-1/L, CH-2/R (phone jack) × 1 each -60 dB, 3 k ohms, unbalanced
Outputs	AUDIO LINE OUT CH-1/L, CH-2/R (XLR 3-pin male) × 1 each +4 dBm (at 600 ohm load), balanced MONITOR AUDIO (phono jack) × 1 -5 dB (at 47 k ohm load) TV (8 pin) × 1 HEADPHONES (stereo phone jack) For 8-ohm headphones Level adjustable (from -26 to -46 dB)
S/N	With Dolby NR off 52 dB (KSP, KSP-S tapes) 50 dB (KCA, KCS tapes) (both channel 1 and 2 at 3% distortion)
Frequency response	50 to 15,000 Hz ±3 dB (both audio channel 1 and 2 with Dolby NR off)
Recording level control	Manual or limiter selectable

Time code

Input	TIME CODE IN (BNC type) x 1 0 dB ±6 dB, 10 k ohms, unbalanced (0 dB = 1.55 Vp-p)
Output	TIME CODE OUT (BNC type) x 1 0 dB ±3 dB, low impedance, unbalanced

Edit

Assemble	Video and audio channel 1 and audio channel 2 (simultaneously)
Insert	Video, audio channel 1 and/or audio channel 2 independently (selectable)
Preroll	Possible
Automatic editing	Possible with the RM-450 Automatic Editing Control (optional) Accuracy: ±2 frames (This value does not apply if the F FWD or REW button is used during editing.)

Other functions

Memory backup of mark in operation	3 years from shipment
Pause	A still picture is obtained with long pause function
Search	Still, 1/30 to 8 times normal speed in both forward and reverse directions
Tracking control	Possible
Skew control	Possible
Sync system	Automatic switching between internal and external
Dropout compensator	Built-in

Tape transport

Tape speed	95.3 mm/sec.
Recording and playback time	Approx. 60 minutes (with KSP-60)
Fast forward and rewind time	Within 4 minutes (with KSP-60)
Wow and flutter	Less than 0.18% RMS
Tape compatibility	U-matic video cassette tapes
Usable tapes	KSP, KSP-S, KCA-BRS, KCS-BRS, KCA-XBR, KCS-XBR type

General

Power requirements	Nominal voltage: 120 V AC, 50/60 Hz
Operating voltage	90–132 V AC
Power consumption	90 W (with the BKU-704 or BKU-705, BKU-703 and RM-440)
Operating position	Horizontal (up to 20 degrees)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	426 × 238 × 513 mm (w/h/d) (16 7/8 × 9 3/8 × 20 1/4 inches) including projecting parts and controls
Weight	Approx. 21.4 kg (47 lb 3 oz)
Supplied accessories	AC power cord (1) Operating instructions (1)

Design and specifications are subject to change without notice.

Recommended video equipment and accessories

Editing Control Unit RM-450, RM-440 (when the BKU-703 installed)
Color Video Monitor Sony CVM and PVM series
Color Video Camera Sony DXC series
Time code generator/reader BKU-705
Time code reader BKU-704
33P editing interface BKU-703
Remote Control Unit RM-500, RM-580 (when the BKU-703 installed)
Cleaning Cassette KCS-1CL
Remote Control Cable RCC-5F (33-pin), RCC-5G (9-pin)
Dubbing Cable VDC-5 (5 m)
Monitor Connecting Cable VMC-3P (3 m), VMC-5P (5 m), VMC-10P (10 m)
Multi Remote Control Unit RM-555 (when the BKU-703 installed)
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VTR Selector RM-V5
Rack mount kit RMM-501

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SECTION 1
GENERAL DESCRIPTION

1-1. FEATURES

High-quality picture with a new recording/playback system

Recording and playback using the newly developed SP (Superior Performance) system and SP tapes specially designed for the SP system, provide clearer and sharper pictures than before.

Hi-Fi sound

Dolby NR C type noise reduction system permits high sound quality with reduced noise. The signal-to-noise ratio of 70 dB can be obtained (KSP or KSP-S tape) using the Dolby noise reduction system.
Cannon-3 pin connectors usually used for professional audio equipment are employed for the audio inputs and outputs.

Search operation

A search dial with the shuttle and jog functions is furnished. Playgack pictures can be viewed at various speeds from 1/30 times to 8 times normal speed as well as in a still mode in shuttle mode. In jog mode, playback pictures from still to ± 1 time normal speed can be viewed.
As the playback can be performed in both forward and reverse directions, any desired scene can be easily found.

LED time counter

The time counter reads out the CTL signals recorded on a tape and the LEDs indicate the tape running time in hours, minutes, seconds and frames. These are useful to check the recording time of a material and the remaining time of a tape.
When the BKU-705 time code generator/reader (optional) or the BKU-704 time code reader (optional) is installed in the VO-9850, the time code recorded on the tape is read and displayed.

Connection of a time base corrector

The best possible playback picture will be obtained by connecting a time base corrector.

Memory function using MARK IN button

A particular point on a tape can be memorized by pressing the MARK IN button and can be searched for easily afterward.

Electronic editing

All essential functions for electronic editing, rotary erase head, and capstan servo, framing servo, ϕ^2 servo loop circuit are incorporated in the VO-9850, which assures a high-quality editing with noiseless and stable picture at the edit point.
When an RM-450 automatic editing control unit is used, an automatic electronic editing of high-quality will be possible.

Remote control

The unit is equipped with a 9-pin remote control connector. When the equipment which has a 9-pin remote connector such as an RM-450 editing control unit, is connected here, the VO-9850 can be remotely controlled with this unit.
When a BKU-703 33-pin editing interface (optional) is installed in the VO-9850, it can be remotely controlled by the equipment with a 33-pin remote connector such as an RM-440.

Time code recording and playback

Sony prepares optional boards for time code operation such as a BKU-705 time code generator/reader, and BKU-704 time code reader. When the board is installed in the VO-9850, recording and playback of time code will be possible.

Dial menu operation

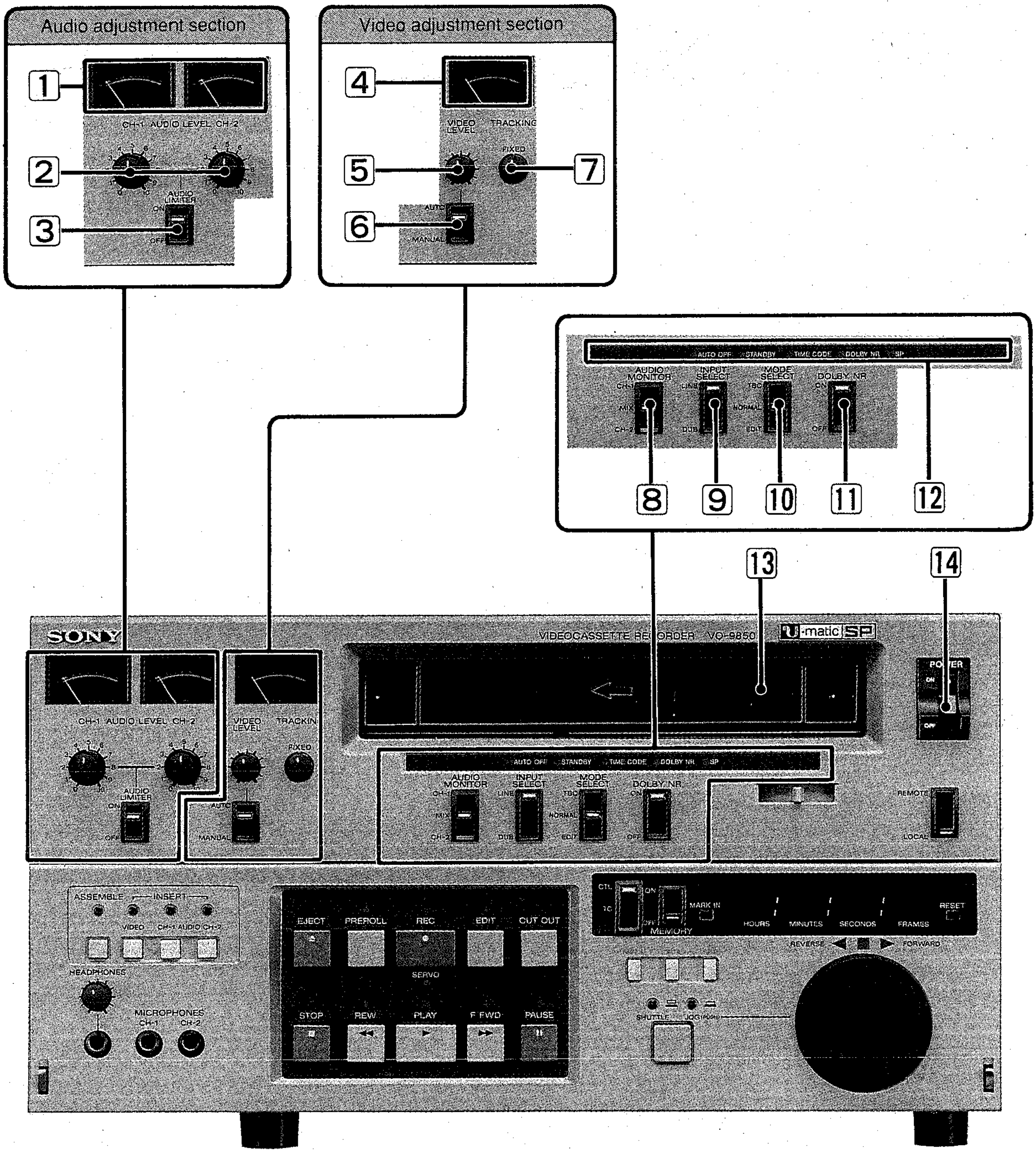
With the search dial, you can set time code, and change the setting value for editing.

Dubbing connectors

Connectors for editing or duplicating video signals are included.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

FRONT PANEL


Audio adjustment section
Video adjustment section
1
2
3
4
5
6
7
8
9
10
11
12
13
14
CH-1 AUDIO LEVEL CH-2
AUDIO LIMITER
ON
OFF
VIDEO LEVEL
TRACKING
FIXED
AUTO
MANUAL
AUTO OFF
STANDBY
TIME CODE
DOLBY NR
SP
AUDIO MONITOR
CH-1
MIX
CH-2
INPUT SELECT
LINE
DUB
MODE SELECT
TBC
NORMAL
EDIT
DOLBY NR
ON
OFF
SONY
VIDEOCASSETTE RECORDER VO-9850
U-matic SP
POWER
ON
OFF
REMOTE
LOCAL
ASSEMBLE
INSERT
VIDEO
CH-1 AUDIO CH-2
HEADPHONES
MICROPHONES
CH-1
CH-2
EJECT
PREROLL
REC
EDIT
CUT OUT
SERVO
STOP
REW
PLAY
F FWD
PAUSE
CTL
TC
ON
OFF
MARK IN
MEMORY
HOURS
MINUTES
SECONDS
FRAMES
RESET
REVERSE
FORWARD
SHUTTLE
JOG

Audio adjustment section

1 Audio level meters
Audio recording level is shown in recording and audio playback level in playback.

2 AUDIO LEVEL controls

3 AUDIO LIMITER switch

ON	The audio recording limiter circuit is activated to minimize sudden surges of input signals and perform recording with low sound distortion. Microphone recordings shall be performed with this setting.
OFF	The limiter circuit is deactivated, enabling a manual recording level adjustment.

Video adjustment section

4 VIDEO LEVEL/TRACKING meter
This meter indicates the video recording level during recording and whether or not tracking is correct during playback.

5 VIDEO LEVEL control
With the AUTO/MANUAL selector 6 set to MANUAL, turn this control to adjust video recording level so that the meter pointer swings within the blue zone.

6 AUTO/MANUAL selector

AUTO	The video recording level will be adjusted automatically.
MANUAL	Set to this position to adjust the video recording level manually.

7 TRACKING control
Normally set this control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the VIDEO LEVEL/TRACKING meter 4 pointer deflects to the right as far as possible.

8 AUDIO MONITOR switch
Select the sound to be monitored through headphones or a speaker of a video monitor.

9 INPUT SELECT switch
This switch selects the signal to be recorded.

LINE	To record the signal from the VIDEO IN connector.
DUB	To record the signal from the DUB IN connector.

10 MODE SELECT switch
This switch selects the sync mode according to the connected equipment or to the operation mode.

TBC	For playback with a time base corrector
NORMAL	For normal recording or playback
EDIT	For editing

- If the switch is set to TBC without connecting a time base corrector, the picture rolls in the search mode.
- For editing, be sure to set the MODE SELECT switch to EDIT. When the switch is set to the position other than EDIT, the editing does not begin.

11 DOLBY NR (noise reduction) switch
When using an SP series tape for recording, set this switch to:

ON	For recording the sound with the Dolby NR system
OFF	For recording the sound without the Dolby NR system

- This switch has no effect in playback mode. The circuit is automatically switched by detecting whether the tape being played has been recorded with the Dolby NR system or not.
- The Dolby NR system is effective only for recording on SP series cassettes. This switch is not operative when recording on KCA and KCS cassettes.
- If the sound recorded with the Dolby NR system is played back on a conventional U-matic VTR (which is not equipped with the Dolby NR system), treble will be boosted.

12 Indicator section

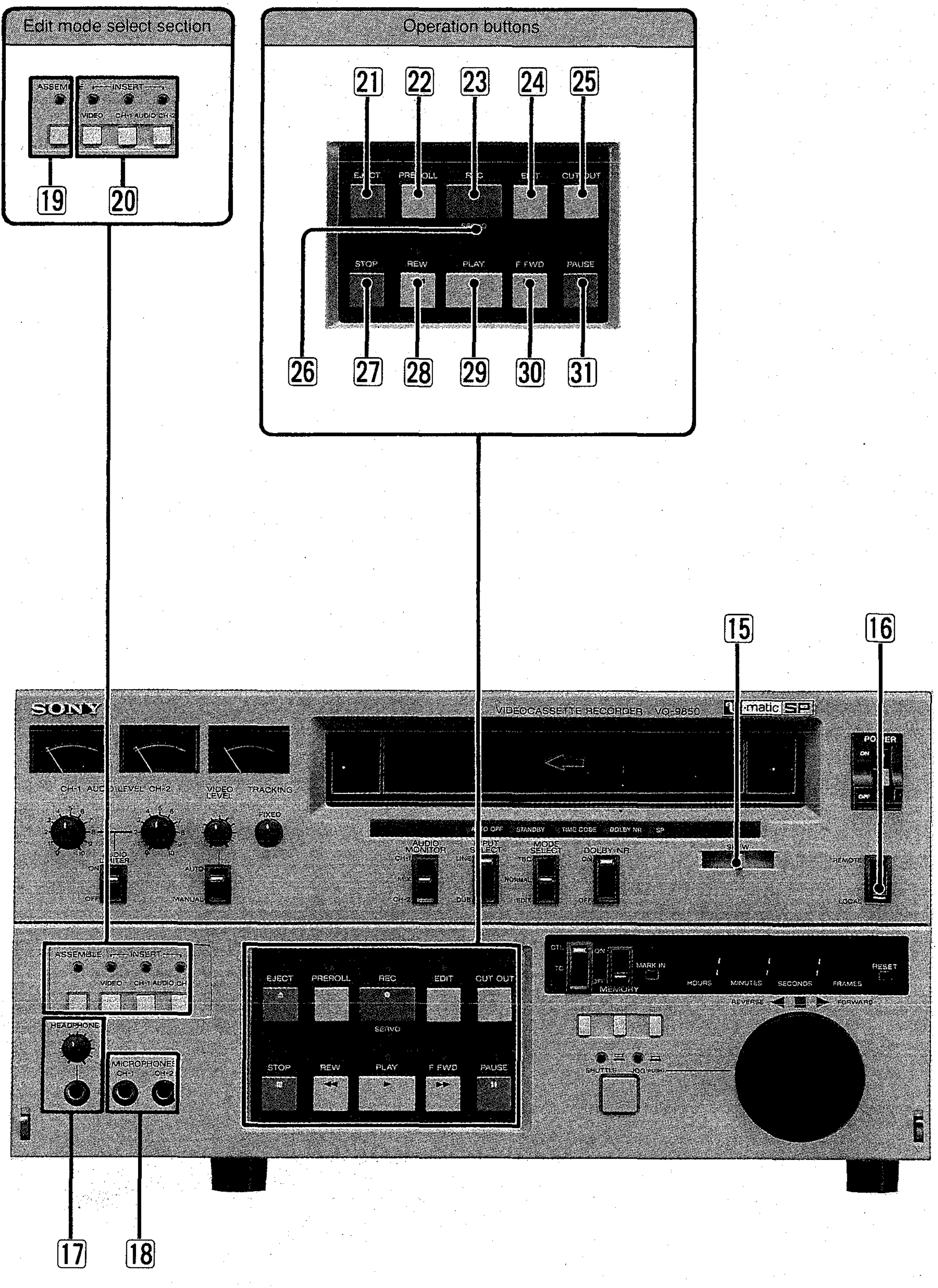
AUTO OFF	Lights at power-on when moisture is condensed inside the unit. While this indicator is lit, a cassette cannot be loaded.
STANDBY	Lights while a tape is being threaded from or unthreaded to the cassette inside the unit.
TIME CODE	Lights when time code is being recorded, or when the tape on which time codes are recorded is played back.
DOLBY NR*	In recording: Lights when an SP series cassette is inserted with the DOLBY NR switch set at ON. In playback: Lights when a tape recorded with the Dolby NR system is played back.
SP**	In recording: Lights when an SP series cassette is loaded. In playback: Lights when a tape recorded in SP mode is played back.

* When the power is turned on with the DOLBY NR switch set at ON, the DOLBY NR lamp lights up even if no cassette has been inserted.

** When the power is turned on, the SP lamp lights up even if no cassette has been inserted.

13 Cassette compartment

14 POWER switch


Edit mode select section
ASSEMBLE
INSERT
VIDEO
CH-1 AUDIO CH-2
19
20
Operation buttons
21
22
23
24
25
EJECT
PREROLL
REC
EDIT
CUT OUT
SERVO
STOP
REW
PLAY
F FWD
PAUSE
26
27
28
29
30
31
15
16
SONY
VIDEOCASSETTE RECORDER VO-9850
U-matic SP
POWER
ON
OFF
CH-1 AUDIO LEVEL CH-2
VIDEO LEVEL
TRACKING
FIXED
AUDIO LIMITER
ON
OFF
AUTO
MANUAL
AUTO OFF
STANDBY
TIME CODE
DOLBY NR
SP
AUDIO MONITOR
CH-1
MIX
CH-2
INPUT SELECT
LINE
DUB
MODE SELECT
TC
NORMAL
EDIT
DOLBY NR
ON
OFF
SLOW
REMOTE
LOCAL
HEADPHONE
MICROPHONES
CH-1
CH-2
CTL
TC
ON
OFF
MARK IN
MEMORY
HOURS
MINUTES
SECONDS
FRAMES
RESET
REVERSE
FORWARD
SHUTTLE
JOG (PUSH)
17
18

15 **SKEW lever**
Normally set this lever at the center position.
When "hooking" distortion appears in the upper part of a playback picture, slide this lever to the right or left to obtain a normal picture.
- Do not move this lever while recording.

16 **REMOTE/LOCAL selector**
Use this selector to control this unit with the other equipment connected to the REMOTE -1(9P) connector on the rear panel.
The functions are controlled as follows:

REMOTE	Set to this position when you want this unit to be controlled by the unit connected to the REMOTE-1 (9P) connector (9-pin). With this selector set to REMOTE, none of the operation buttons for tape travel, except for the STOP and EJECT buttons, will function.
LOCAL	Set to this position to operate this unit alone.

17 **HEADPHONES connector (stereo phone jack), HEADPHONES level control**

18 **MICROPHONES CH-1 and CH-2 connectors (phone jacks)**

Edit mode select section

19 **ASSEMBLE button and indicator**
Press for assemble editing. The indicator will light.

20 **INSERT buttons and indicators**
These buttons select the signal(s) to be inserted when editing. The indicator(s) corresponding to the button(s) pressed will light.

VIDEO	To insert the video signal
AUDIO CH-1	To insert the sound on audio channel 1
AUDIO CH-2	To insert the sound on audio channel 2

- Two or more buttons can be pressed simultaneously.

To cancel the channel selected by one of these buttons, press the button again. The indicator will go out.

To change the mode from assemble to insert or vice versa, first cancel the previously selected mode by pressing the button again then press the appropriate buttons.

Operation buttons

21 **EJECT button**
Press to eject the video cassette.

22 **PREROLL button and indicator**
Press this button in pause mode and the tape rewinds for 5 seconds and stops in pause mode.

23 **REC ● (record) button and indicator**
For recording, press this button simultaneously with the PLAY ▶ button.

24 **EDIT button and indicator**
For editing, press this button simultaneously with the PLAY ▶ button. While this button is pressed, the E-to-E mode picture can be seen. (When INSERT mode is selected for editing, the signals selected with the INSERT buttons can be monitored in the E-to-E mode.)

25 **CUT OUT button**
Press this button when assemble or insert editing is finished. The edit mode is canceled and the tape will continue to run in playback mode. When this button is pressed in record mode, the record mode is canceled, and when this button is pressed in pause mode after the preroll, the edit mode is canceled.

26 **SERVO lamp**
With the PLAY ▶ button pressed, normally the drum and capstan servo-mechanisms will start working properly. This lamp lights when the servo-mechanisms are locked in a reference signal.

Note

The SERVO lamp blinks if the servo-mechanisms are not locked in during editing.

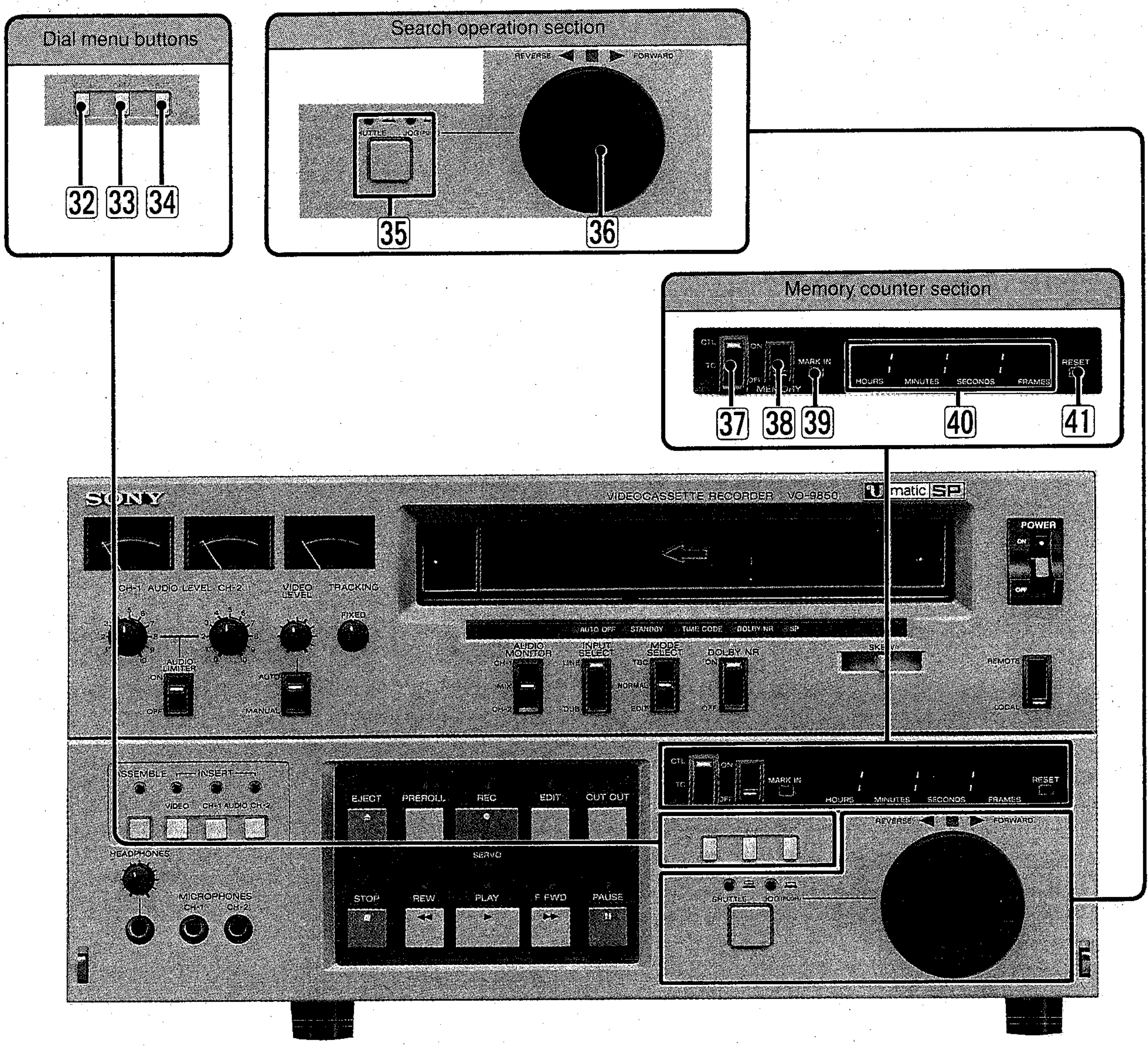
27 **STOP ■ button**
Press to stop the operation of the unit. The E-to-E mode picture can be seen on the monitor screen.

28 **REW ◀◀ (rewind) button and indicator**
Press to rewind the tape. The E-to-E mode picture can be seen on the monitor screen.

29 **PLAY ▶ button and indicator**
Press to play the tape back. Simultaneously pressing this button with the REC button sets the unit in the record mode: simultaneously pressing it with the EDIT button sets the unit in the edit mode.

30 **F FWD ▶▶ (fast forward) button and indicator**
Press to advance the tape rapidly. The E-to-E mode picture can be seen on the monitor screen.

31 **PAUSE ❚❚ button and indicator**
Press to stop the tape momentarily. To start the tape, press again. When this button is pressed during playback, a still picture will be obtained. If the PLAY ▶, F FWD ▶▶, REW ◀◀ or search button is pressed during the pause mode, the pause mode will be released and the tape will run in the mode designated by the button pressed.


Dial menu buttons
32
33
34
Search operation section
REVERSE
FORWARD
SHUTTLE
JOG
35
36
Memory counter section
CTL
TC
ON
OFF
MEMORY
MARK IN
HOURS
MINUTES
SECONDS
FRAMES
RESET
37
38
39
40
41
SONY
VIDEOCASSETTE RECORDER VO-9850
U-matic SP
POWER
ON
OFF
CH-1 AUDIO LEVEL CH-2
VIDEO LEVEL
TRACKING
FIXED
AUDIO LIMITER
AUTO
MANUAL
AUTO OFF
STANDBY
TIME CODE
DOLBY NR
SP
AUDIO MONITOR
INPUT SELECT
MODE SELECT
DOLBY NR
REMOTE
LOCAL
ASSEMBLE
INSERT
VIDEO
CH-1 AUDIO CH-2
EJECT
PREROLL
REC
EDIT
CUT OUT
SERVO
STOP
REW
PLAY
F FWD
PAUSE
HEADPHONES
MICROPHONES
CH-1
CH-2

Dial menu buttons

The dial menu buttons 32, 33 and 34 are used only when the CTL/TC/DIAL MENU selector 37 is set to DIAL MENU.

32 **MENU button**
While pressing this button, turn the search dial in jog mode to select the menu.

33 **DATA button**
While pressing this button, turn the search dial in jog mode to set the data.

34 **SET button**
Press this button to settle the data set by the DATA button.

Search operation section

35 **Search button**
Press to put the unit in the search mode, and the search operation with the search dial in jog or shuttle mode will be possible.

36 **Search dial and SHUTTLE/JOG lamps**
Functions as a search dial for quickly locating edit points or as a selector for the dial menu operation according to the setting of the CTL/TC/DIAL MENU selector 37.

Setting	Function
CTL or TC	Search for a scene
DIAL MENU	Dial menu operation

The details of the function are as follows:

Search for edit points
Set the CTL/TC/DIAL MENU selector to CTL or TC, and press the search button [35]. The search dial can make the tape run in jog or shuttle mode. Push in to change from the shuttle mode to the jog mode and push it in again to change back. The corresponding lamp lights to show the current mode. Rotate the dial clockwise to run the tape forward (the ► FORWARD lamp lights), and counterclockwise to run the tape in reverse (the REVERSE ◄ lamp lights).
When the tape stops, the ■ lamp lights.

SHUTTLE:	Set the dial to one of 16 positions to run the tape at a speed from 1/30 to 8 times normal speed. A still picture is obtained at the center detent position.
JOG:	The dial turns freely. The tape runs at a speed from 0 to 1 times normal speed while the dial is rotated. When the dial is stopped, a still picture is obtained.

Dial menu operation
Set the CTL/TC/DIAL MENU selector to DIAL MENU. Rotate the dial while pressing the MENU button [32] or the DATA button [33] to set characters or numbers on the display.

Memory counter section

[37] **CTL/TC/DIAL MENU selector**
Selects what is displayed in the time counter display [40] as follows.

CTL	Displays time period of tape travel in hours, minutes, seconds and frames by counting CTL pulses.
TC	Displays time code
DIAL MENU	The unit goes into the dial menu operation mode and the dial menu will be displayed. In this mode, any other functions are deactivated.

Notes

- You can put the VO-9850 in the dial menu operation mode with the REMOTE/LOCAL selector [16] set to LOCAL, only when a cassette is not inserted or when the unit is in the stop mode.
- The time code data is displayed only when the BKU-705 time code generator/reader or the BKU-704 time code reader is installed in the VO-9850.

[38] **MEMORY switch**
When this switch is set to ON, the tape will automatically stop the point where the MARK IN button was pressed in the rewind or search mode. The point where the tape stops may shift a little. If the MARK IN button has not been pressed, the tape will stop at the point where the time counter indicates "0:00:00:00" (when CTL is selected).

- During editing or when the REMOTE 1 (9P) connector is used, be sure to set this switch to OFF.

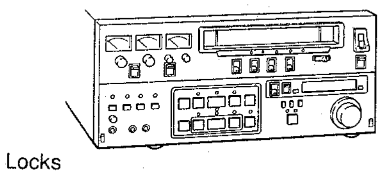
[39] **MARK IN button**
Press to memorize a particular point on the tape and the time indicator keeps indicating the memorized point while the button is pressed.
The memory function can be activated at any position of the MEMORY switch.

[40] **Time counter display**
Displays the item selected by the CTL/TC/DIAL MENU selector [37].

[41] **RESET button**
When the CTL signal is used to display the time period of the tape travel on the time counter display [40], press to reset to 0:00:00:00. The point memorized by the MARK IN button will be canceled.

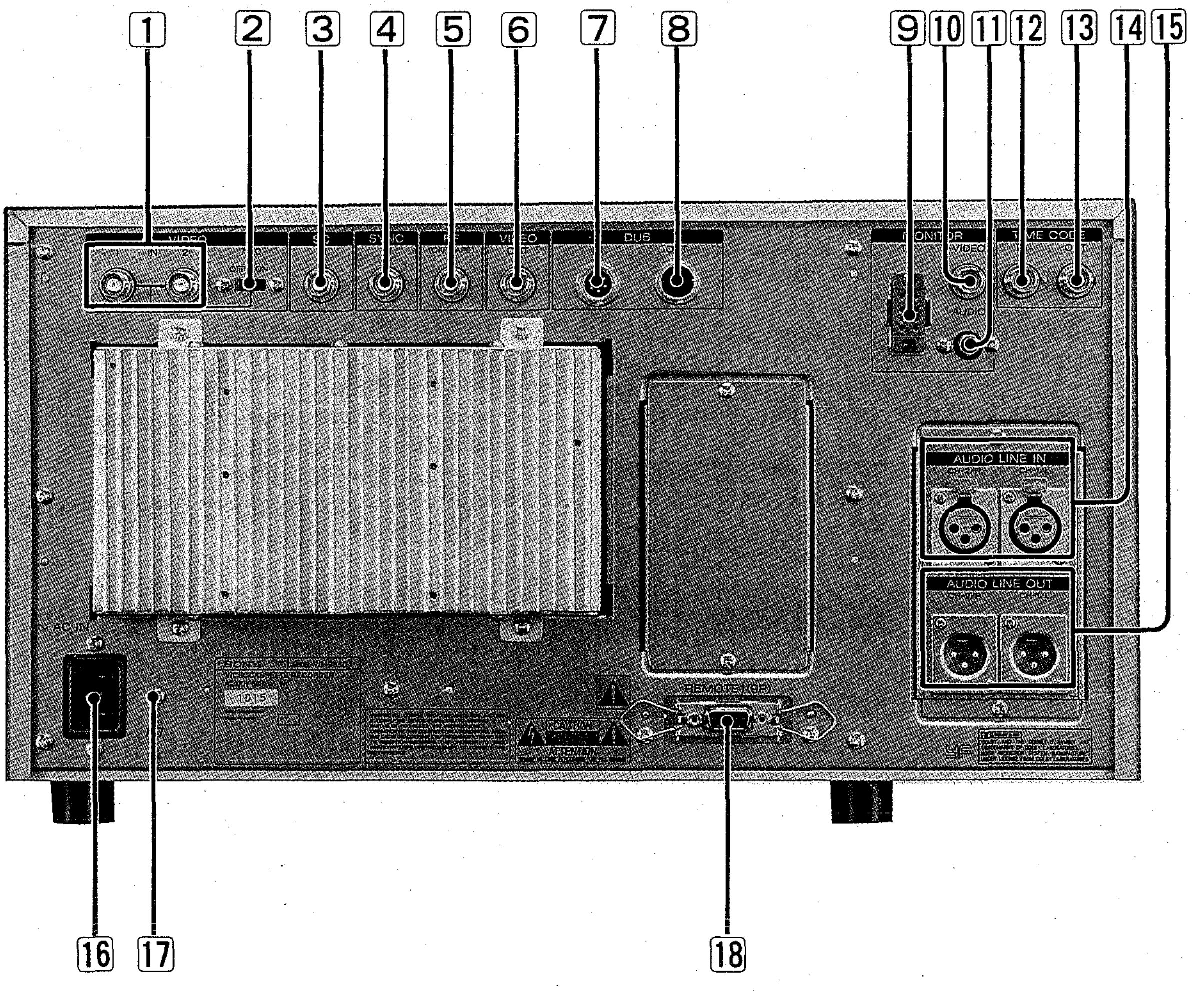
Control panel positioning
The lower half of the control panel can be tilted upwards by 30°, 60° or 90° for convenience.

1 Push down the locks on the both sides simultaneously so that the lower half of the front panel comes to the front.



2 Tilt the panel up and lock it at the desired angle of 30°, 60° or 90°. Be sure to check that both sides are locked firmly.

REAR PANEL


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
VIDEO
IN
SYNC
VIDEO
DUB
MONITOR
VIDEO
AUDIO
TIME CODE
AUDIO LINE IN
AUDIO LINE OUT
AC IN
REMOTE 1(9P)
16
17
18

[1] **VIDEO IN (video input) connectors (BNC type)**
Supply a composite video signal to one of these connectors.
For a bridging connection, use either one for input and the other for output. In this case, be sure to set the 75 ohm termination switch [2] to OFF and terminate the trunk line end instead.

[2] **75 ohm termination switch**
Use to terminate the video signal supplied to the VIDEO IN connector [1].

ON	When one VIDEO IN connector is used for the incoming signal and the other is left open.
OFF	For a bridging connection (One VIDEO IN connector is used for the incoming signal but the other is used to send the incoming signal to another VTR.)

[3] **SC IN (sub-carrier) connector (BNC type)**
Accepts a sub-carrier signal from a time base corrector.

[4] **SYNC IN (sync signal input) connector (BNC type)**
Accepts an external sync signal to operate the unit in synchronization with an external device (time base corrector, etc.).

[5] **RF (OFF TAPE) output connector (BNC type)**
Supplies an FM signal to a time base corrector in playback.

[6] **VIDEO OUT connector (BNC type)**

[7] **DUB IN (dubbing input) connector (7-pin)**
Use to input the video signal to be dubbed from a U-matic VTR. Connect to the dub out connector of the U-matic VTR using the 7-pin dubbing cable (optional).

[8] **DUB OUT (dubbing output) connector (7-pin)**
Use to supply the video signal to be dubbed to a U-matic VTR. Connect to the dub in connector of the U-matic VTR using the 7-pin dubbing cable (optional).

[9] **TV (monitor) connector (8-pin connector)**
Accepts a video monitor having an 8-pin VTR connector. Both the MONITOR VIDEO, and MONITOR AUDIO connections can be replaced with a single cable connection here. In playback, the channel selected by the AUDIO MONITOR switch will be heard through the speaker on the video monitor.

- The data of the dial menu is superimposed on the video signal and output.

[10] **MONITOR VIDEO connector (BNC type)**
This outputs the video signal for monitoring. Connect to the video input connector of a color monitor. Information superimposed on a picture in the dial menu operation mode will also be output.

[11] **MONITOR AUDIO output connector (phono jack)**
Supplies an audio signal selected by the AUDIO MONITOR switch on the front panel.

[12] **TIME CODE IN connector (BNC type)**
Accepts the time code supplied from an external time code generator or another VTR.
When the BKU-705 time code generator/reader (optional) is installed in the VO-9850, it can be locked with the time code supplied to this connector.
When the BKU-705 is not installed, the time code supplied to this connector can be recorded.

[13] **TIME CODE OUT connector (BNC type)**
During playback, the time code recorded on the tape is played back and output from here. When the time code is supplied to the TIME CODE IN connector, the supplied time code is output during recording.
When the BKU-705 time code generator/reader is installed, the time code generated by the BKU-705 is output during recording.

[14] **AUDIO LINE IN CH-1/L and CH-2/R connectors (XLR 3-pin, female)**

[15] **AUDIO LINE OUT CH-1/L and CH-2/R connectors (XLR 3-pin, male)**

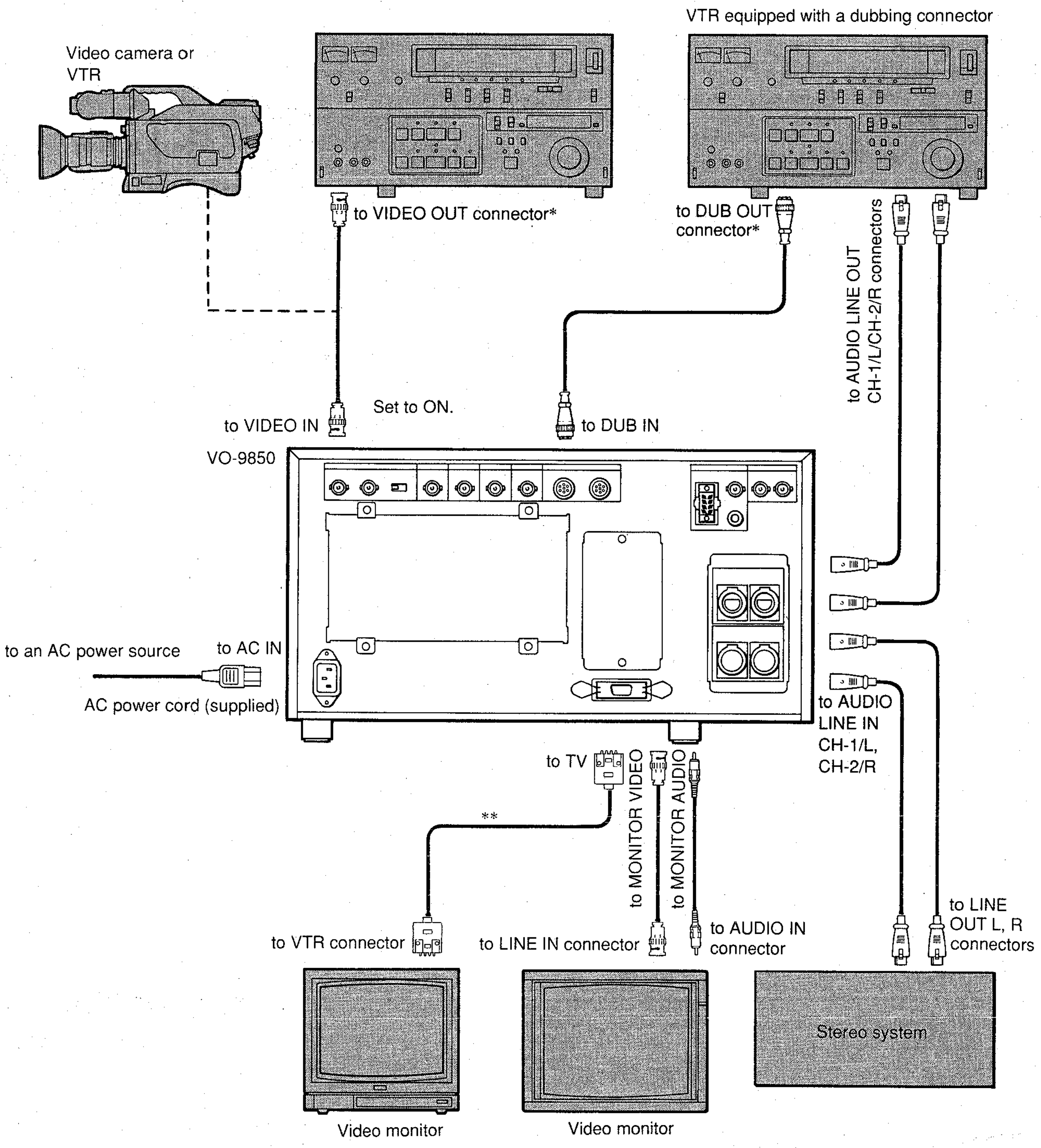
[16] **AC IN (power inlet)**
Plug in the supplied AC power cord to supply power to the VO-9850.

[17] **Ground terminal**

[18] **REMOTE 1 (9P) connector (9-pin)**
Connect a Sony editing control unit such as an RM-450 to perform an edit recording.
Use the 9-pin remote control cable (optional) to make the connection.

1-3. CONNECTIONS

1-3-1. Connections for Recording

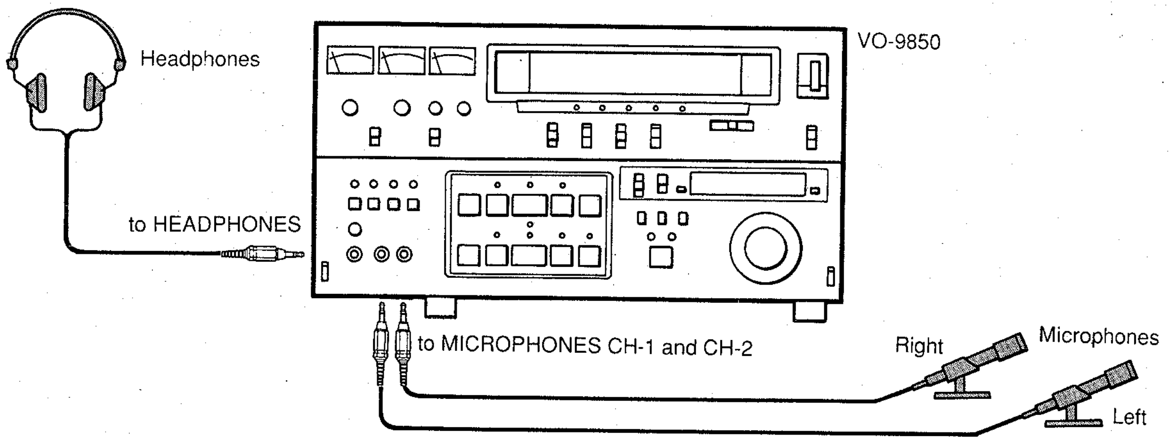

VTR equipped with a dubbing connector
Video camera or VTR
to VIDEO OUT connector*
to DUB OUT connector*
to AUDIO LINE OUT CH-1/L/CH-2/R connectors
Set to ON.
to VIDEO IN
to DUB IN
VO-9850
to an AC power source
to AC IN
AC power cord (supplied)
to AUDIO LINE IN CH-1/L, CH-2/R
to TV
to MONITOR VIDEO
to MONITOR AUDIO
**
to VTR connector
to LINE IN connector
to AUDIO IN connector
to LINE OUT L, R connectors
Stereo system
Video monitor
Video monitor

---

* When a VTR which is not equipped with the DUB connector, connect it to the VIDEO IN connector on the VO-9850 using a cable with BNC connectors.

** Use a VMC-3P, VMC-5P or VMC-10P monitor connecting cable.

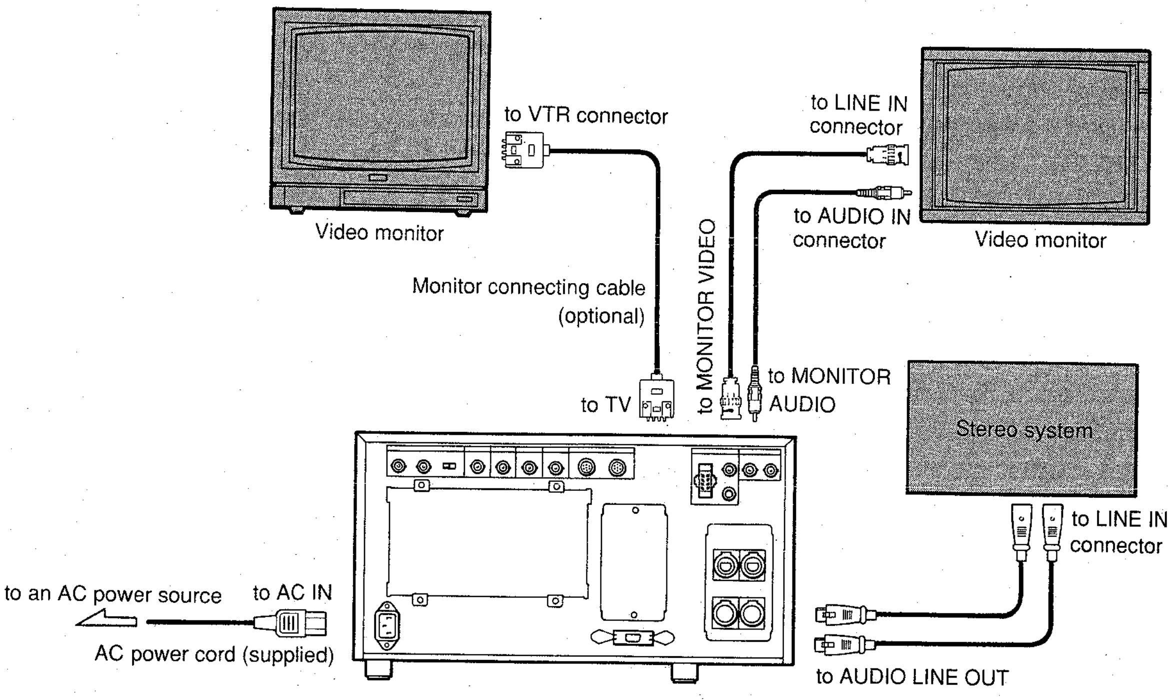
1-3-2. Connections for Headphones and Microphones


Headphones
VO-9850
to HEADPHONES
to MICROPHONES CH-1 and CH-2
Right
Microphones
Left

Note

When the microphones are connected, the signals connected to the AUDIO LINE IN connectors on the rear panel are automatically cut off, and cannot be recorded.

1-3-3. Connections for Playback


to VTR connector
Video monitor
Monitor connecting cable (optional)
to TV
to MONITOR VIDEO
to LINE IN connector
to AUDIO IN connector
Video monitor
to MONITOR AUDIO
Stereo system
to LINE IN connector
to AUDIO LINE OUT
to an AC power source
to AC IN
AC power cord (supplied)

1-4. OPERATION

FOR RECORDING

When the recording is finished

Press the STOP button.

If the recording is done to the end of the tape

The tape automatically rewinds to the beginning, and stops.

. **Note on recording**

Do not move the SKEW lever while recording.

Regarding a cassette

Be sure to check that the red button is in place on the cassette before inserting it in the VTR. If the cassette without the button is inserted, the recording mode cannot be obtaines.

To stop the tape momentarily

Press the PAUSE button.

To resume recording, press the PAUSE button again.

Long pause mode

If the pause mode continues for 8 minutes, the tape around the head drum automatically slackens to protect the video head and the tape. This is called "long pause mode".

To release the long pause mode, press the PAUSE button.

E-to-E (Electronics-to-Electronics) mode

An input video signal which has passed through the amplifier in the recorder is displayed on the monitor screen. This is the E-to-E mode picture, permitting the input signal to be checked on the monitor screen.

The unit automatically enters the E-to-E mode when it is set in the stop, F FWD or REW mode.

FOR PLAYBACK

To stop playback

Press the STOP button.

When the tape is played back to the end

It automatically rewinds to the beginning and then stops.

To stop the tape momentarily

Press the PAUSE button. The tape stops and a still picture appears on the monitor screen. The still picture is a clear one having no guard-band noise.

To resume playback, press the PAUSE button again or press the PLAY button.

. If the pause mode continues for 8 minutes, the recorder automatically enters the long pause mode, and the still picture will disappear.

Note on the MODE SELECT switch

If the MODE SELECT switch is set to TBC without connecting a time base corrector, the playback picture rolls.

SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF CABINET

. Top Panel

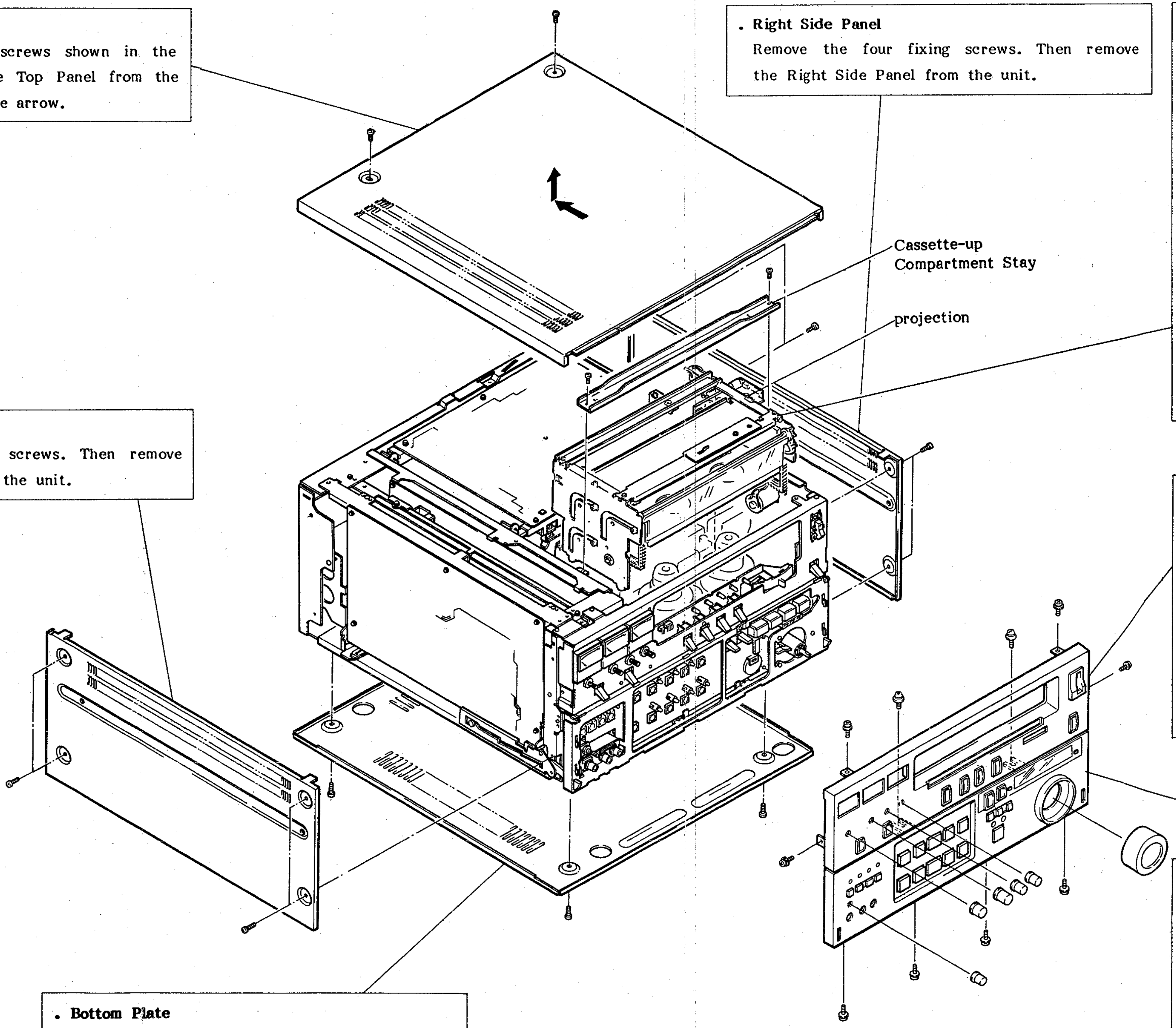
Remove the two fixing screws shown in the figure. Then remove the Top Panel from the unit in the direction of the arrow.

. Left Side Panel

Remove the four fixing screws. Then remove the Left Side Panel from the unit.

. Bottom Plate

Remove the four fixing screws. Then remove the Bottom Plate from the unit.



. Right Side Panel

Remove the four fixing screws. Then remove the Right Side Panel from the unit.

. Cassette-up Compartment

(1) Remove the Top Panel.
(2) Remove the two fixing screws and then remove the Cassette-up Compartment Stay.
(3) Disconnect CN1 on the CC-36 board.
(4) Lift the Cassette-up Compartment Block slowly.
(5) When installing the Cassette-up Compartment, insert the projections of the Cassette-up Compartment Block into the holes of the chassis.
(6) Connect CN1 on the CC-36 board.
(7) Insert the projections of the Cassette-up Compartment Block into the holes of the Cassette-up Compartment Stay (as shown in the figure) and then fix the screws.

. Front Panel

(1) Remove the Top Panel, the Left and Right Side Panels, and the Cassette-up Compartment Block.
(2) Remove the four fixing screws (two screws on the top, and a screw on each side).
(3) Remove the two fixing screws of the lower portion of the Front Panel from the inside of the unit. Then remove the Front Panel from the unit.

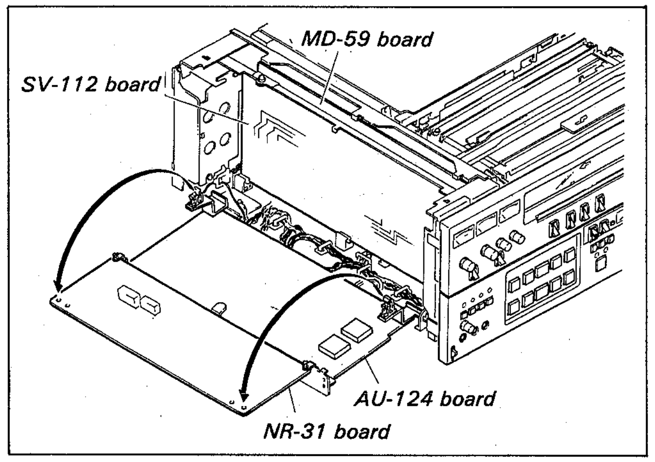
. Key Panel

(1) Remove the dial cover, and remove a knob from the unit.
(2) Push down the right and left knobs on the front of the Key Panel and open the Panel at a 90 degree angle.
(3) Remove the four fixing screws. Then remove the Key Panel from the unit.

2-2. HOW TO SERVICE THE PRINTED CIRCUIT BOARD

2-2-1. AU-124, NR-31, SV-112 and MD-59 Boards

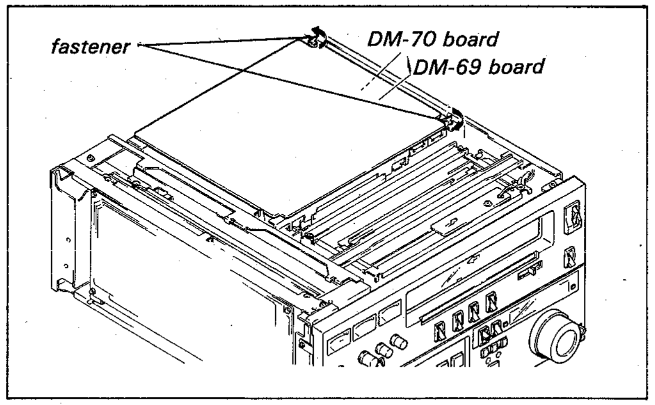
Open the AU-124 and NR-31 boards to repair as shown in the figure.


MD-59 board
SV-112 board
AU-124 board
NR-31 board

2-2-2. DM-69 and DM-70 Boards

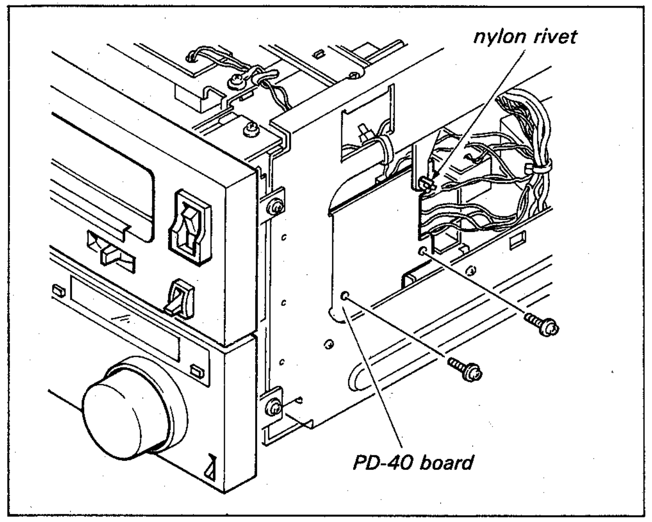
Turning the fastener to the direction of the arrow, the DM-69 board can be opened. Then, the component side of the DM-69 board can be repaired.

After opening the DM-69 board, the DM-70 board can be opened.


fastener
DM-70 board
DM-69 board

2-2-3. PD-40 Board

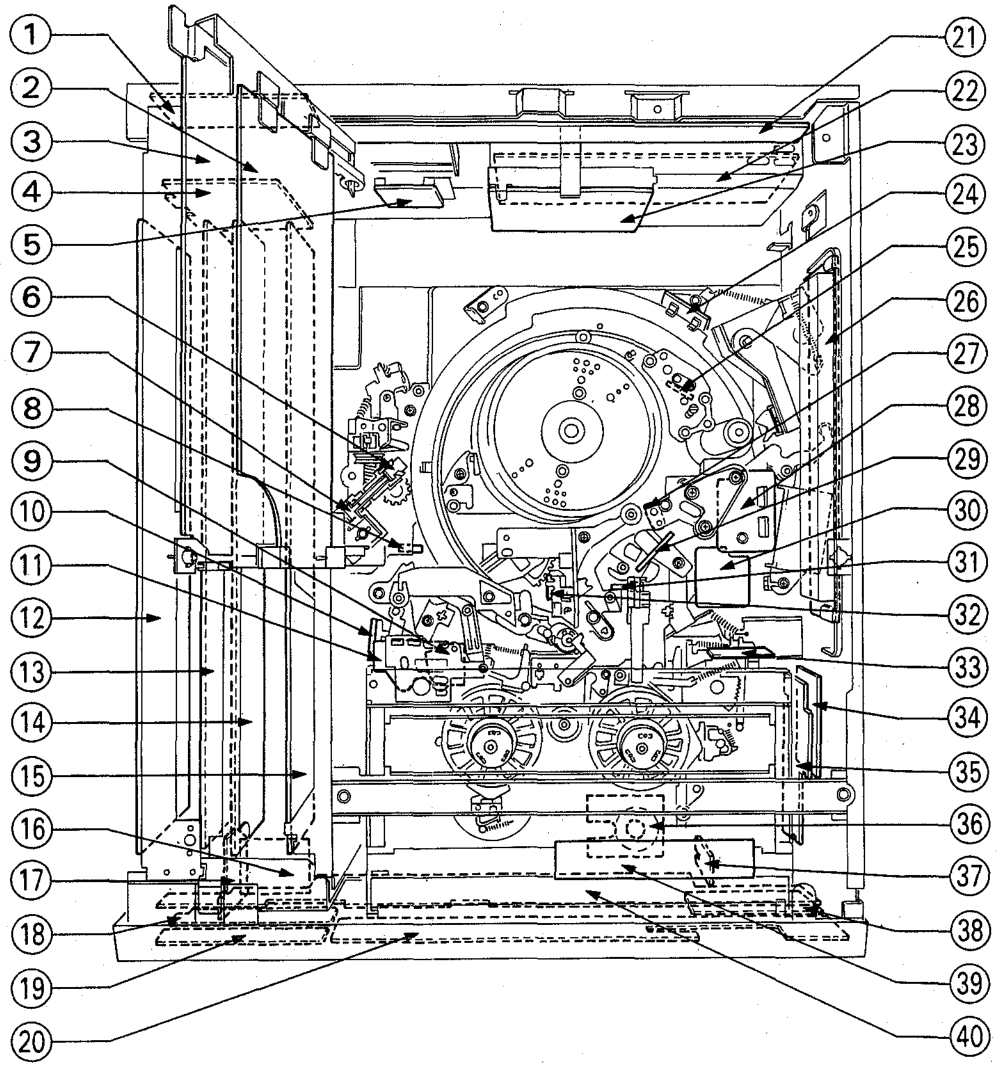
Remove the nylon rivet from the inside of the unit and remove two screws, and then remove the PD-40 board.


nylon rivet
PD-40 board

2-3. MAIN PARTS LOCATION

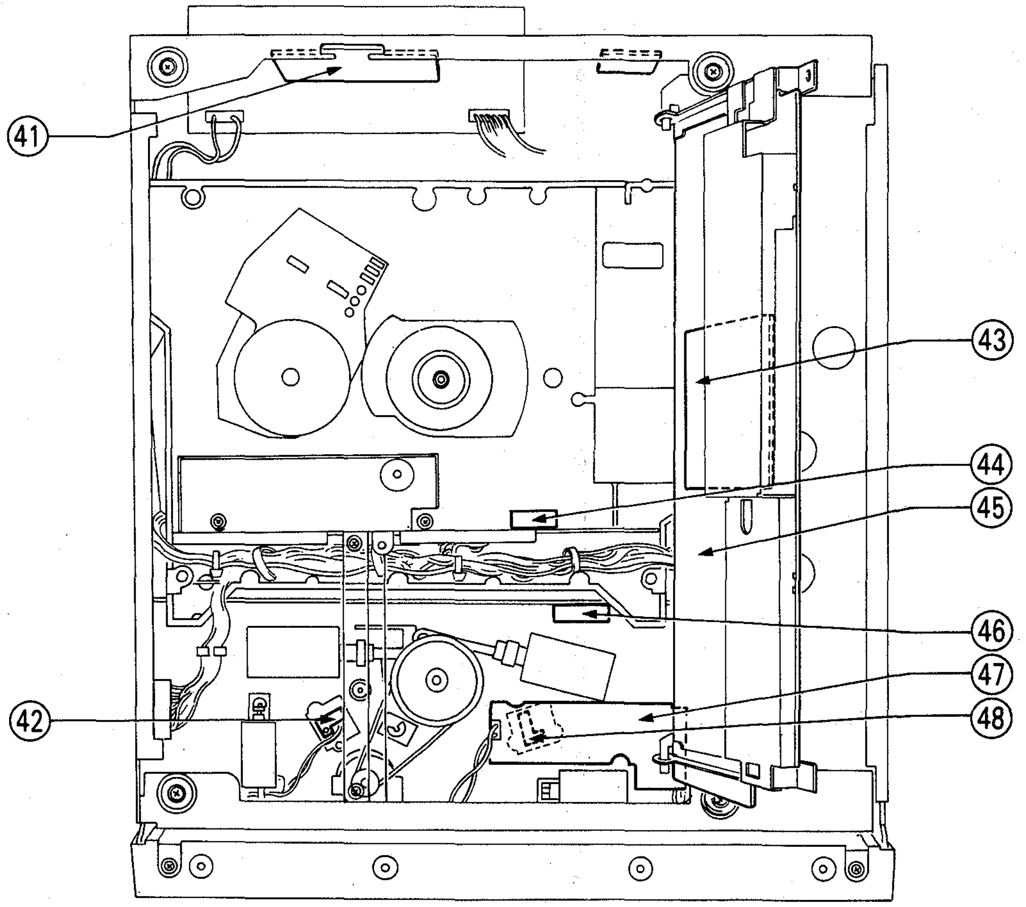
2-3-1. Location of the Printed Circuit Board

[TOP VIEW]



1	CP-136 Board
2	DM-70 Board
3	DM-69 Board
4	AA-16 Board
5	RM-66 Board
6	PH-5 Board
7	PH-5 Board
8	LM-13 Board
9	SE-46 Board
10	PTC-34 Board
11	PTC-30 Board
12	AU-124 Board
13	NR-31 Board
14	SV-112 Board
15	MD-59 Board
16	MC-28 Board
17	HP-42 Board
18	VR-80 Board
19	MT-53 Board
20	SW-315 Board
21	DUS-271 Board
22	Switching Regulator (UR-01)
23	DC-31D Board
24	PTC-33 Board
25	DUS-92 Board
26	RP-40 Board
27	HN-84 Board
28	DUS-147 Board
29	EC-32 Board
30	HN-130 Board
31	PH-5 Board
32	PH-5 Board
33	CC-37 Board
34	PD-40 Board
35	CC-36 Board
36	RM-39 Board
37	PTC-32 Board
38	DP-62 Board
39	LP-41 Board
40	KY-159 Board

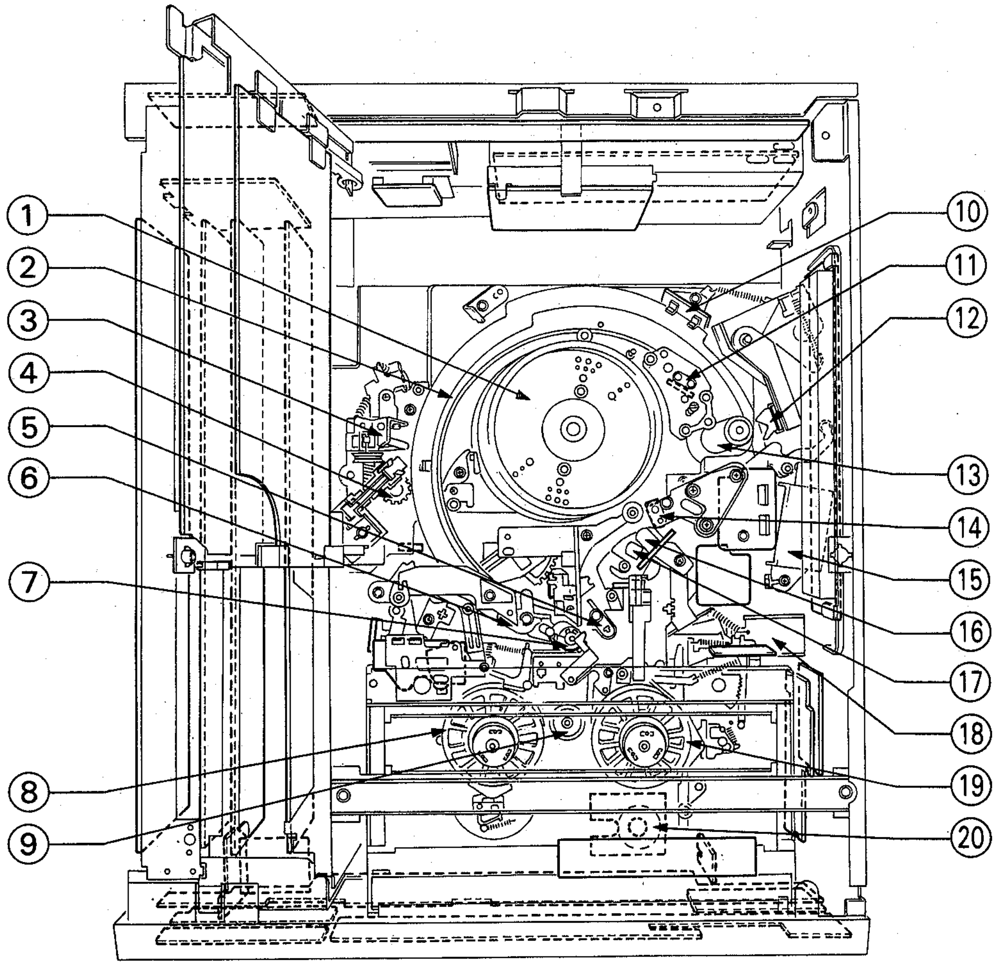
[BOTTOM VIEW]



41	AC-94 Board
42	PTC-35 Board
43	BC-16 Board
44	PT-9 Board
45	SY-141 Board
46	TG-22 Board
47	PD-41 Board
48	PTC-35 Board

2-3-2. Location of the Mechanical Main Parts/ Components

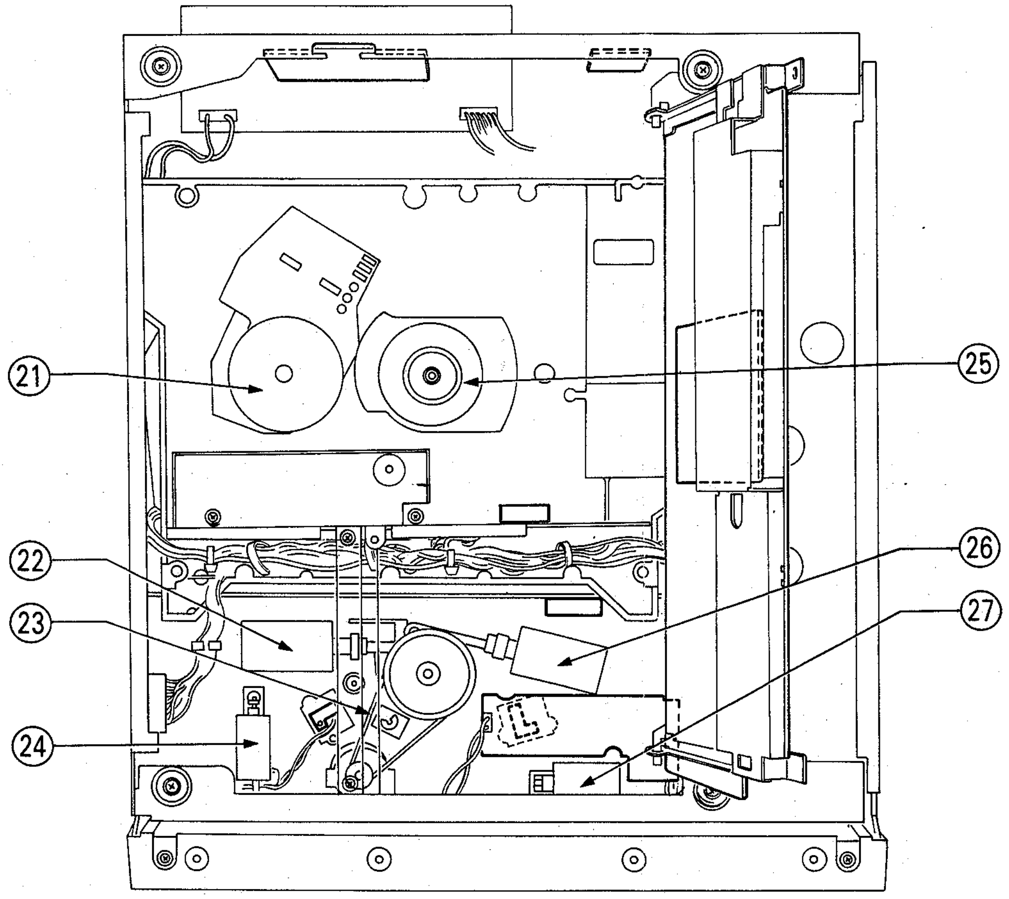
[TOP VIEW]



1 Head Drum
2 Threading Ring
3 T Correction Guide
4 Gear Box
5 S Drawer Arm
6 T Drawer Arm
7 Pinch Roller
8 Take-up Reel Table
9 Idler Pulley
10 FR Detector

11 Audio/CTL Head
12 Pinch Lever
13 Capstan Shaft
14 Time Code Head
15 Pinch Solenoid
16 FR CTL Head
17 Full Erase Head
18 Search Solenoid
19 Supply Reel Table
20 Reel Motor

[BOTTOM VIEW]



21 Capstan Motor
22 Supply Idler Solenoid
23 Belf for FF/REW Idler
24 Supply Brake Solenoid
25 Drum Motor
26 Take-up Idler Solenoid
27 Take-up Brake Solenoid

2-4. PRINTED CIRCUIT BOARD

Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-69	Y Demodulator, SP Detector, Character Mixer
	DM-70	C PB Processor
	DUS-271	Connector
	MD-59	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector,
	SW-315	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112	Drum/Capstan Servo
	SY-141	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-94	Line Filter
	DC-31D	DC Supply
	UR-01	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159	Function Key Board
	DP-62	Display
	BC-16	Video/Audio Timing Control
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
	SY-141	System Control
	TG-22	Tension Regulator LED
OTHERS	CP-136	Framing Switch
	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

2-5. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

Panel Indication	Connector
MONITOR TV	1-506-161-00 CONNECTOR, 8P, MALE
SC IN SYNC IN RF (OFF TAPE) VIDEO IN VIDEO OUT MONITOR VIDEO TIME CODE IN TIME CODE OUT	1-560-069-11 PLUG, BNC, MALE
MONITOR AUDIO	1-506-311-00 PLUG, PIN
AUDIO LINE IN CH-1, CH-2	1-508-084-00 CONNECTOR, XLR, 3P, FEMALE
AUDIO LINE OUT CH-1, CH-2	1-508-083-00 CONNECTOR, XLR, 3P, MALE
REMOTE 1 (9P)	1-560-651-00 PLUG, 9P, MALE and 1-561-749-00 JUNCTION, SHELL, 9P
DUB IN	1-561-055-00 PLUG, 7P, FEMALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE

2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

VIDEO IN 1, 2	: 1.0 ± 0.3 Vp-p, 75 ohms, unbalanced, sync negative
VIDEO OUT	: 1.0 ± 0.2 Vp-p, 75 ohms, unbalanced, sync negative
SC IN	: 1 Vp-p (0.5 to 3 Vp-p), 75 ohms, unbalanced
SYNC IN	: 2.5 Vp-p (1 to 5 Vp-p), 75 ohms, unbalanced
RF (OFF TAPE)	: 0.5 Vp-p (0.3 to 1.0 Vp-p), 75 ohms, unbalanced
AUDIO IN CH-1/L, CH-2/R	: +4 dB, 10 kohms, balanced
MICROPHONES CH-1/L, CH-2/R	: -60 dB, 3 kohms, unbalanced
AUDIO OUT CH-1/L, CH-2/R	: +4 dBm (at 600-ohm load), balanced
MONITOR AUDIO	: -5 dB (at 47-kohm load)
HEADPHONES	: -26 to -46 dB (adjustable)
TIME CODE IN	: 0 ± 6 dB, 10 kohms, unbalanced (0 dB = 1.55 Vp-p)
TIME CODE OUT	: 0 ± 3 dB, low impedance, unbalanced

2-7. SPARE PARTS

(1) The ⚠ -marked components are critical to safety.
Replace only with the same components as specified.

(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit. This is due to "accommodating improved parts and/or engineering changes" or "standardization of genuine parts".

- This manual's exploded views and electrical spare parts lists indicate the part numbers of "the present standardized genuine parts".
- Regarding engineering part changes by our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-8. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switch listed below is on the DM-69 and DM-70 boards. These switches must be set according to operating conditions.

. DM-69 Board
S301:
When the SP format video signal and Conventional format video signal are recorded with mixed on the SP cassette, unstabilized picture may be appear at the SP/CONV switching points in the STILL and SEARCH modes (less than ×1.2).
If improve this unstabilized picture in the STILL and SEARCH modes, this switch is set to OFF position.
When the unit is shipped, this switch is set to ON position.

. DM-70 Board
S501: APC Switch
When the tape dubbed by VTR without capstan servo system is played back by this unit, the picture is sometimes not colored because of unusual APC fluctuations. This switch can widen APC lock-range so as to obtain the colored picture.
ON : WIDE (widen APC lock-range)
OFF: NORMAL
When the unit is shipped, this switch is set to the OFF position.
If this switch is set to the ON position, the colored picture cannot obtain sometimes in search mode. This switch should be turned to the OFF position in the normal use.

2-9. HOW TO OPERATE THE MACHINE WITHOUT INSTALLING A CASSETTE TAPE

(1) Remove the Cassette-up Compartment. (Refer to Section 2-1.)
(The Tape Beginning Sensor and Tape End Sensor are disabled according to disconnect the connector of Cassette-up Compartment.)

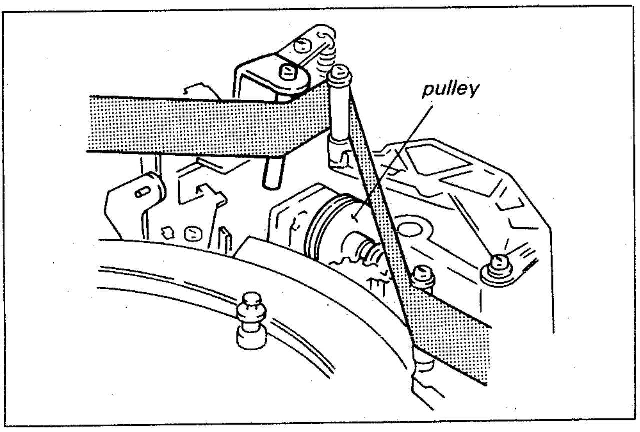
(2) Turn the power ON. (The machine enters the FR-STOP mode automatically.)

(3) The machine can be placed into the desired mode by pressing the function button corresponding to the mode.

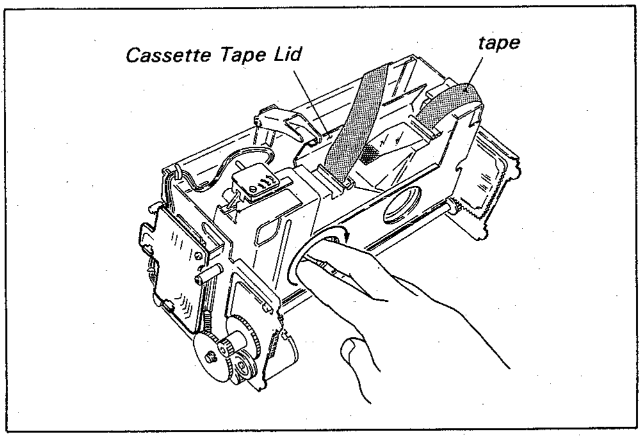
2-10. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the EJECT operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the EJECT operation takes place, the cassette tape can be removed from the set by following the procedures described below.

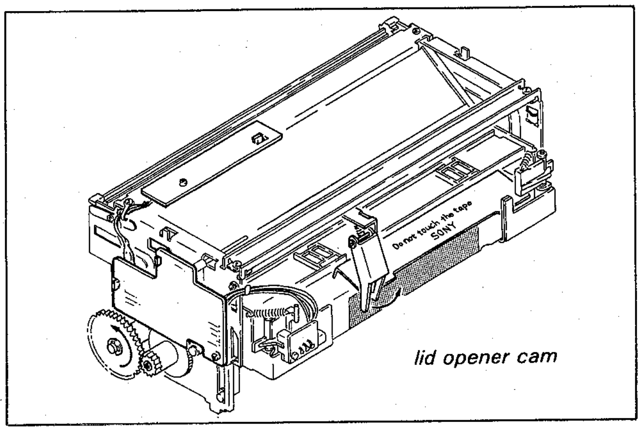
(1) Turn the power OFF.
(2) Remove the Top Panel. (Refer to Section 2-1.)
(3) Turn the white pulley of the Gear Box by hand in a clockwise direction looking from the front panel side until the Threading Ring is in the FR-STOP position (until the S Drawer Arm is located at the front of CTL head). At this time, the Threading Ring moves in the unthreading direction. But the tape remains at the position of threading completion.



(4) Disconnect the connector CN1 on the CC-36 board of the Cassette-up Compartment.
(5) Remove the Cassette-up Compartment Stay. (Refer to Section 2-1.)
(6) Slowly lift the Cassette-up Compartment with the cassette tape in it. Remove the tape remaining in the set carefully so that it is not damaged.
(7) Hold the Cassette Tape Lid so that it does not close. Wind the tape into the cassette by turning the reel hub on the back of the cassette by hand.



(8) Raise the cam for opening the lid and close the cassette lid.



(9) Remove the tape from the Cassette-up Compartment.
(10) Turn the gear on the right side of the Cassette-up Compartment by hand in a counterclockwise direction in order to place the Cassette-up Compartment into the up state.
(11) Locate the cause of the trouble and remedy the problem.

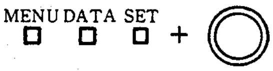
2-11. DIAL MENU OPERATION

The system controls (Still Timer, Preroll Time, etc.) initially set at the factory can be arbitrarily modified using the SEARCH dial, MENU button, DATA button, and SET button.
The dial menu has the following functions:

- . BASIC FUNCTION
- . ENHANCED FUNCTION

2-11-1. Button and Dial Settings

Search dial: Selects the ITEM, Modifies the DATA, Moves the cursor.
MENU button: Selects the ITEM when used with a search dial.
DATA button: Selects the DATA when used with a search dial.
SET button : Writes the DATA into the memory.



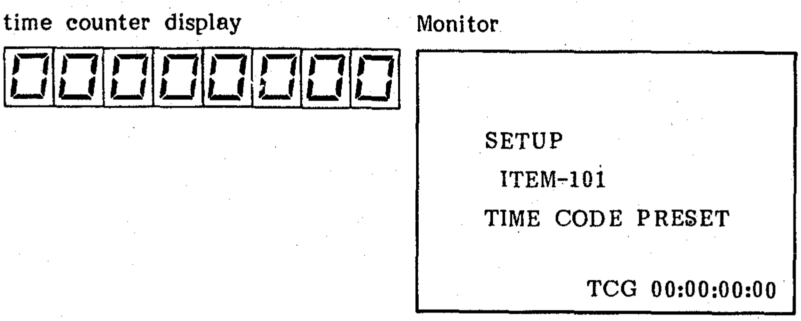
2-11-2. Operation

<Put the unit into DIAL MENU operation mode>

The DIAL MENU opration data appears on the Front Panel's time counter display and monitor television (the video signals should be connected to the VIDEO IN connector and the monitor television should be connected to the MONITOR connector on the Connector Panel).

(1) Set the REMOTE/LOCAL switch on the Front Panel to LOCAL.
(2) Put the unit into JOG mode (when the SHUTTLE lamp is on, press the SEARCH dial).
(3) Press the STOP button and put into the STOP mode or PLAY PAUSE mode.

(4) Set the CTL/TC/DIAL MENU switch on the Front Panel to DIAL MENU.
The unit is put into the DIAL MENU mode and the ◁□▷ lamp at the top of the SEARCH dial lights.



SETUP
ITEM-101
TIME CODE PRESET

TCG 00:00:00:00

When the unit is put into the DIAL MENU mode after power on sequence, the following ITEM is selected automatically.

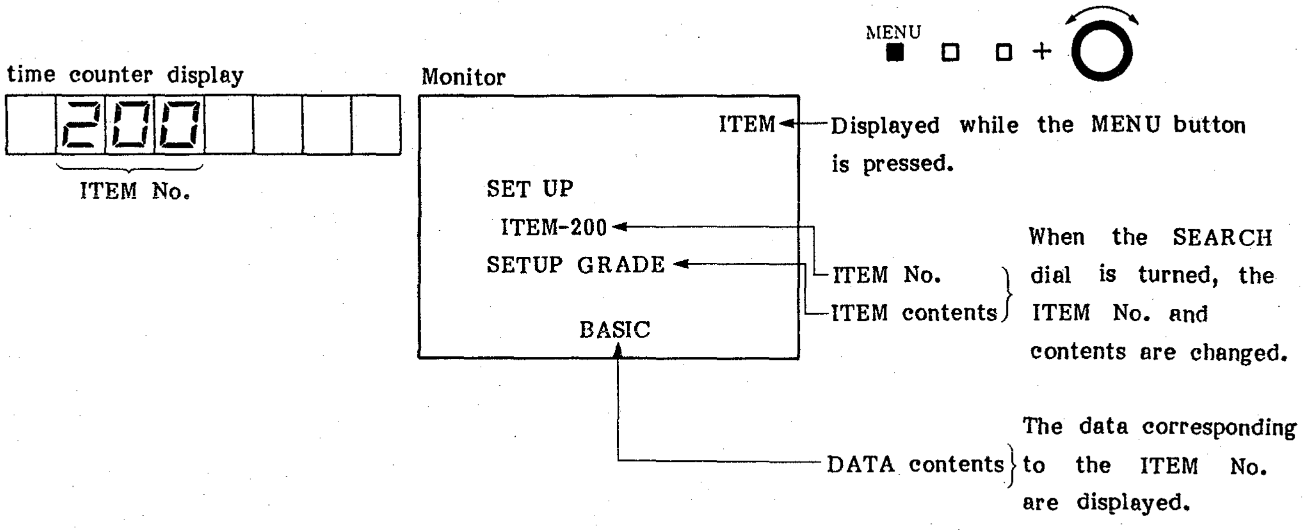
When the optional time code (BK-705) is installed into the unit:
ITEM-101

When the optional time code (BK-705) is not installed into the unit:
ITEM-105

(NOTE) The VTR cannot be operated normally in the DIAL MENU operation mode.

<Select the ITEM>

(5) Turn the search dial while pressing the MENU button.



ITEM

SET UP
ITEM-200
SETUP GRADE

BASIC

ITEM ← Displayed while the MENU button is pressed.

ITEM No.
ITEM contents } When the SEARCH dial is turned, the ITEM No. and contents are changed.

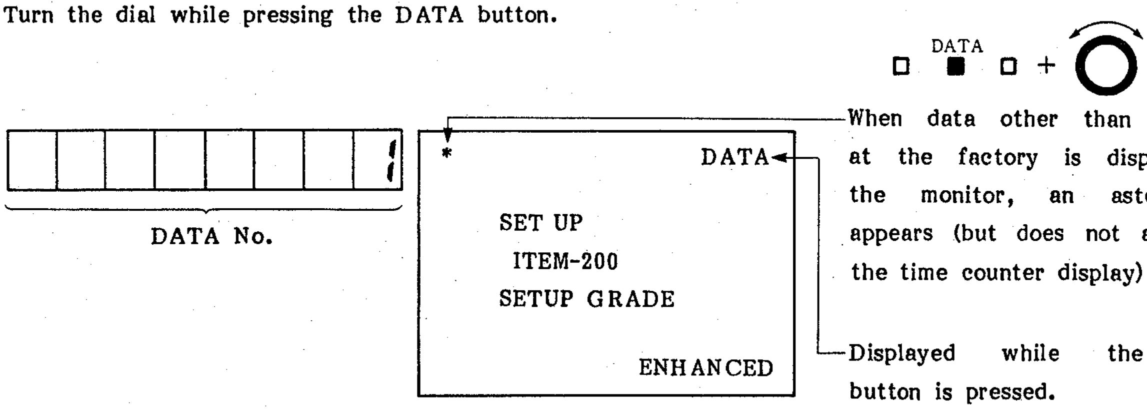
DATA contents } The data corresponding to the ITEM No. are displayed.

(6) Stop the dial when the desired ITEM is displayed, and then release the MENU button.

When the DATA No. on the time counter display and DATA contents on the monitor blink, they can be modified as following method.

<Modify the data>

(7) Turn the dial while pressing the DATA button.



*

SET UP
ITEM-200
SETUP GRADE

ENHANCED

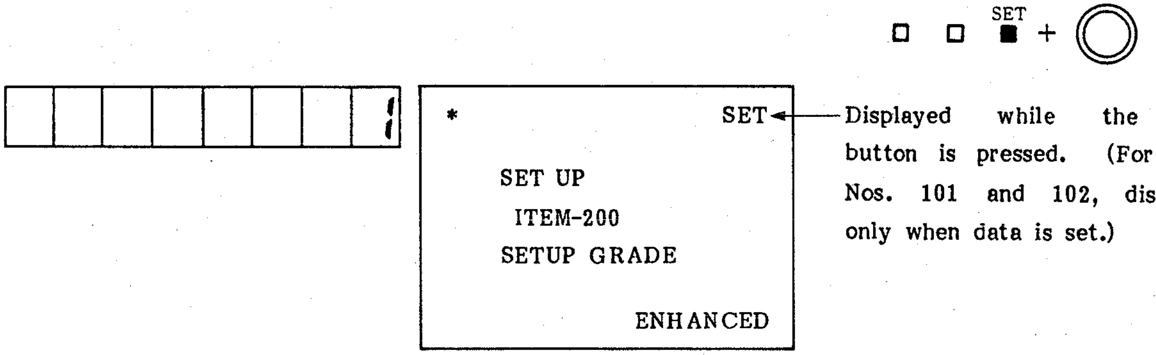
When data other than that set at the factory is displayed on the monitor, an asterisk (*) appears (but does not appear on the time counter display)

Displayed while the DATA button is pressed.

(8) Stop the dial when the desired data is displayed, and release the DATA button.

<Set the data>

(9) Press the SET button.



*

SET UP
ITEM-200
SETUP GRADE

ENHANCED

Displayed while the SET button is pressed. (For ITEM Nos. 101 and 102, displayed only when data is set.)

- The displayed data is written into the memory, the data remains unchanged even if the POWER switch is turned OFF.
- If the updated data is set, the ◁□▷ lamp at the top of the SEARCH dial flashes for one second when the SET button is pressed. The DATA No. and DATA content blinking stops at that time.

2-11-3. ITEM/DATA

(1) BASIC FUNCTION

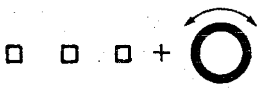
(NOTE) ITEM Nos. 101 and 102 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
101	TIME CODE PRESET	00000000 │ 23595929	TCG 00:00 :00:00 │ TCG 23:59 :59:29	Time code setting. 00H00M00S00Fr through 23H59M59S29Fr can be set. Factory setting: DATA No.00000000 (TCG00:00:00:00)

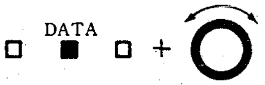
Setting the data in the ITEM No. 101

(NOTE).Set the INT/EXT switch on the BKU-705 to INT.
.Set the SLAVE LOCK/PRESET switch on the BKU-705 to PRESET.
.Select whether the LTC time code should be used in the DF mode or NDF mode in the ITEM No. 202.

1. Turn the SEARCH dial and blink the desired digit.



2. Turn the dial while pressing the DATA button to set the desired figures.



3. Repeat the steps 1, 2 to set the desired figures.

4. When completed, press the SET button.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
102	U-BIT PRESET	00000000 | FFFFFFFF	00 00 00 00 | FF FF FF FF	User bit setting. Eight-digit data (hexadecimal) can be recorded into a tape. Data setting is the same as in ITEM No.101. Factory setting: DATA No.00000000 (00 00 00 00)
105	CHARACTER POSITION	0 | 15	OFF 1 | 15	Set the character position that is super-imposed on the monitor (only the vertical direction). When set to OFF, the character is not displayed. The displayed data of TC(U-BIT)/CTL can be selected with CTL/TC/DIAL MENU switch on the Front Panel. Factory setting: DATA No.0 (OFF)
106	CHARACTER SIZE	0 1	SMALL LARGE	Set the character size that is displayed on the monitor. Factory setting: DATD No.0 (SMALL)
200	SETUP GRADE	0 1	BASIC ENHANCED	DATA No.0 BASIC:Enable to select ITEM from 101 to 200 in the DIAL MENU operation. DATA No.1 ENHANCED: Enable to select ITEM from 201 to 225 in the DIAL MENU operation. Factory setting: DATA No.0 (BASIC)

(2) ENHANCED FUNCTION

The ENHANCED FUNCTION can be used by setting data to ENHANCED in the ITEM No. 200.

(NOTE) ITEM Nos. 202, 203, and 204 are displayed only when an optional time code, BKU-705 is installed into the VTR.

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
201	ERROR STATUS	Error 01 Error 02 Error 03 Error 04 Error 05 Error 10 Error 20 Error 30	REEL STOP TAPE SLACK CAPSTAN ERROR DRUM STOP REEL ERROR HUMID SYSTEM ERROR SENSOR ERROR	Self-diagnostic function. When trouble occurs during normal operation, message "ERROR CODE" appears on the Front Panel's time counter display in any mode. When the unit is put into the DIAL MENU mode to select this ITEM, error status corresponding to the error code are displayed on the monitor. (Refer to Section 2-11-4 for further details.) Note: The ITEM data content cannot be modified. Normal operation: -------- (NONE)
202	DF/NDF SELECT	0 1	NDF DF	Selects whether the LTC time code should be used in the DF mode or NDF mode. DATA No.0 NDF: Non-Drop Frame mode DATA No.1 DF: Drop Frame mode Note: After mode setting, be sure to preset the time code in the ITEM No.101. Factory setting: DATA No.0 (NDF)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
203	PHASE CORRECTION	0 1	OFF ON	Selects whether or not the phase correction of the LTC signal generated using a time code generator should be controlled. DATA No.0 OFF: No phase correction is controlled. DATA No.1 ON: The phase correction is controlled. Factory setting: DATA No.1 (ON)
204	U-BIT BINARY GROUP FLAG	00 01 10 11	NOT SPECIFIED ISO CHARACTER UNASSIGNED1 UNASSIGNED2	Sets the user bit status of the time code signal generated using a time code generator. DATA No.00 NOT SPECIFIED: Character setting is not specified. DATA No.01 ISO CHARACTER: 8-bit character setting based on ISO646 and ISO2022. DATA No.10 UNASSIGNED1: Undefined DATA No.11 UNASSIGNED2: Undefined Factory setting: DATA No.00 (NOT SPECIFIED)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
205	HOUR METER (DRUM)	00000 | 15000	00000H | 15000H	Displays the rotation time of the upper drum. Head replacement can be decided at that time. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
206	HOUR METER	00000 | 15000	00000H | 15000H	Displays the total time of the power on sequence. Up to from 0H to 15000H can be displayed. Note: The ITEM data content cannot be modified.
207	STILL TIMER	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	0.5 SEC 1 SEC 5 SEC 10 SEC 20 SEC 30 SEC 40 SEC 50 SEC 1 MIN 2 MIN 3 MIN 4 MIN 5 MIN 6 MIN 7 MIN 8 MIN	The unit automatically enters the tape PROTECTION mode after it has been in the tape STOP (or STILL) mode for a fixed time to prevent the video head from clogging (to reduce the tape damage). This item sets the transition time of the tape STOP to tape PROTECTION mode. The time can be set from 0.5 seconds to 8 minutes. Factory setting: DATA No.15 (8 MIN)
209	SELECTION FOR SEARCH DIAL ENABLE	0 1	DIAL DIRECT VIA SEARCH BUTTON	When the SEARCH dial is turned or the SEARCH button is pressed, the unit enters the SEARCH mode. This item sets entering the SEARCH mode. DATA No.0 DIAL DIRECT: When the SEARCH dial is turned, the unit enters the SEARCH mode from any mode other than REC/EDIT. DATA No.1 VIA SEARCH BUTTON: When the SEARCH button is pressed, the unit enters the SEARCH mode. Factory setting: DATA No.0 (DIAL DIRECT)

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
214	PREROLL TIME	00	0 SEC	Sets the preroll time during editing. The preroll time can be set from 0 to 15 seconds.
		01	1 SEC	
		02	2 SEC	
		03	3 SEC	
		04	4 SEC	
		05	5 SEC	
		06	6 SEC	
		07	7 SEC	
		08	8 SEC	
		09	9 SEC	
		10	10 SEC	
		11	11 SEC	
		12	12 SEC	
		13	13 SEC	
		14	14 SEC	Factory setting: DATA No.05 (5 SEC)
		15	15 SEC	
217	EDIT DELAY	0	2FRAME	Receive a recording command from the remote control unit during tape EDITING AND SELECTS THE NUMBER OF frames required until the VTR starts recording. DATA No.0 2 FRAME: Starts recording two frames after the command is received. The audio signal is double recorded on the tape. DATA No.1 6 FRAME: Starts recording six frames after the command is received. This compensates the edit timing of audio and video signals. This is the standard setting of this unit. (NOTE) Set according to the editing machine. Factory setting: DATA No.1 (6 FRAME)
		1	6FRAME	

Item		Data		Item and Data Description
ITEM NO. time counter	ITEM content monitor display	DATA NO. time counter	DATA content monitor display	
218	PINCH ON DELAY	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Adjusts the time required from PLAY command sending to tape transport. Factory setting: DATA No.9 (9)
224	TAPE PROTECTION MODE	0 1	STEP FWD LONG PAUSE	When the time in the SEARCH STILL mode set using ITEM No.207 passes, selects the mode setting. DATA No.0 STEP FWD: The tape is sent repeatedly for one second at 1/30 times normal speed in the forward direction. DATA No.1 LONG PAUSE: Enters the LONG PAUSE mode. Factory setting: DATA NO.0 (STEP FWD)
225	NOISELESS STILL	0 1	OFF ON	Selects whether the NOISELESS STILL mode in SEARCH STILL mode or PAUSE mode. Factory setting: DATA No.0 (OFF)

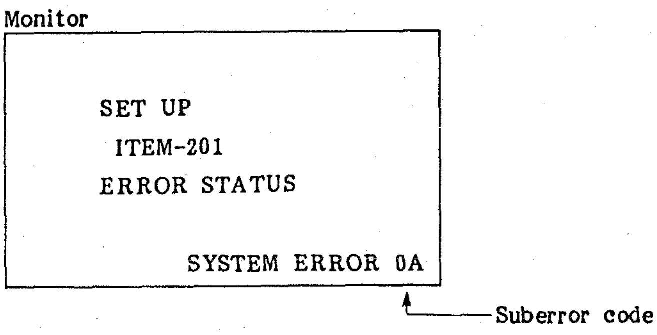
2-11-4. System Error

When a trouble occurs during normal operation and an error code appears on the time counter display of the Front Panel, the error status corresponding to the error code is displayed on the monitor by selecting the Item No. 201 on the dial menu. The error cause can be learned at that time.

counter display	monitor display	Description
Error 02	TAPE SLACK	Excessive tape tension
Error 10	HUMID	The condensation
Error 20	SYSTEM ERROR	Mechanical error. Distinguished by the suberror code. (Refer to the following.)
Error 21	————	RAM error when the POWER is ON.
Error 22	SYSTEM ERROR	Commenication error between optional BKU-703 and the unit.
Error 23	SYSTEM ERROR	Communication error between microcomputors M1 and M2. (Detected by M1 side.)
Error 90	————	Communication error between SY board and KY board.
Error 99	————	Lacking the 1/2 VD pulse to supply for the SY board.

(NOTE) Displayed on the time counter display about ERROR 21, 90 99.

When Error 20 "SYSTEM ERROR" appears, a suberror code is displayed at the lower right corner on the monitor.
The suberror code is described below.


Monitor

SET UP
ITEM-201
ERROR STATUS

SYSTEM ERROR 0A

Suberror code

The suberror code is a two-digit hexadecimal number. Assume that the high-order digit is called Error 1 and the low-order digit called Error 0.

Error 0

0.	Normal operation
1.	Entering the FR STOP mode from threading exceeds the prescribed time (seven seconds).
2.	Entering the THREAD END mode from threading exceeds the prescribed time.

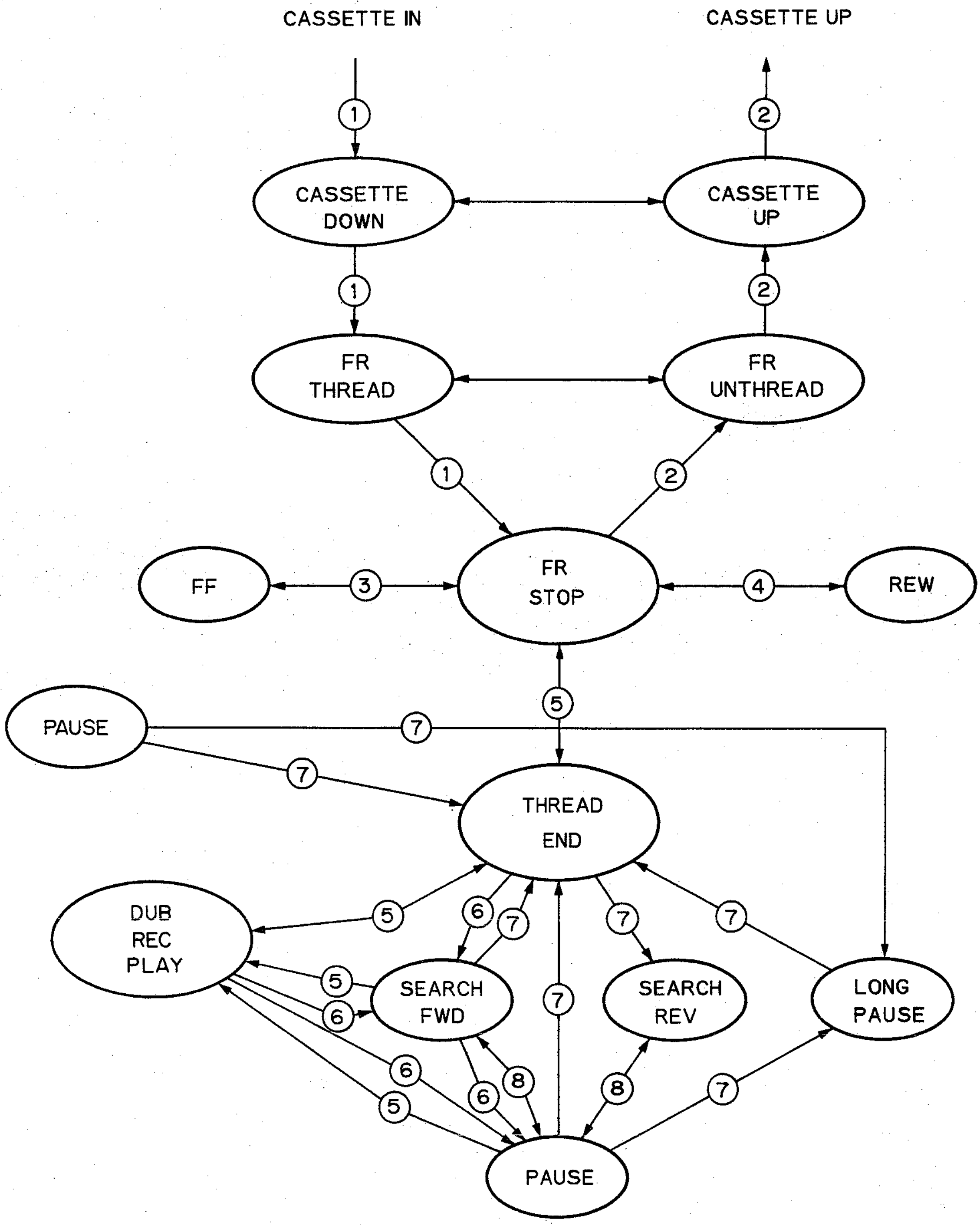
3.	Entering the FR-STOP mode from the THREAD END mode during unthreading exceeds the prescribed time.
4.	Returning from the FR-STOP mode to the CASSETTE DOWN position during unthreading exceeds the prescribed time.
5.	When a cassette is inserted and the EJECT button is pressed before the cassette-up compartment is lowered, raising the cassette exceeds the prescribed time.
6.	Detects the tape slack in FF/REW mode.
7.	Detects the tape slack during the unthreading operation from FR-STOP state.
8.	Detects the tape slack during the unthreading operation from the THREAD END to FR-STOP modes.
9.	Detects the tape slack in x5/x8 times normal forward mode.
A.	Detects the tape slack in x1 to x3 times normal forward mode.
B.	Detects the tape slack in x1/2 to x1 times normal forward mode.
C.	Detects the tape slack in x1/5 to x1/2 times normal forward mode.
D.	Detects the tape slack in x1/10 to x1/5 times normal forward mode.
E.	Detects the tape slack in x1/30 to x1/10 times normal forward mode.
F.	Does not stop the rotation of the capstan motor even if the STOP COMMAND send to it.

Error 1

0.	Normal operation
1.	Microcomputer M2 is not interrupted by the signal eight times the frequency of the 1/2 VD pulse.
2.	Communication error between microcomputers M2 and AV.
3.	Communication error between microcomputers M2 and SV.
4.	Communication error between microcomputers M1 and M2.
5.	Commenication error between optional BKU-703 and the unit.
6.	Communication error between microcomputers M1 and M2. (Detected by M1 side.)

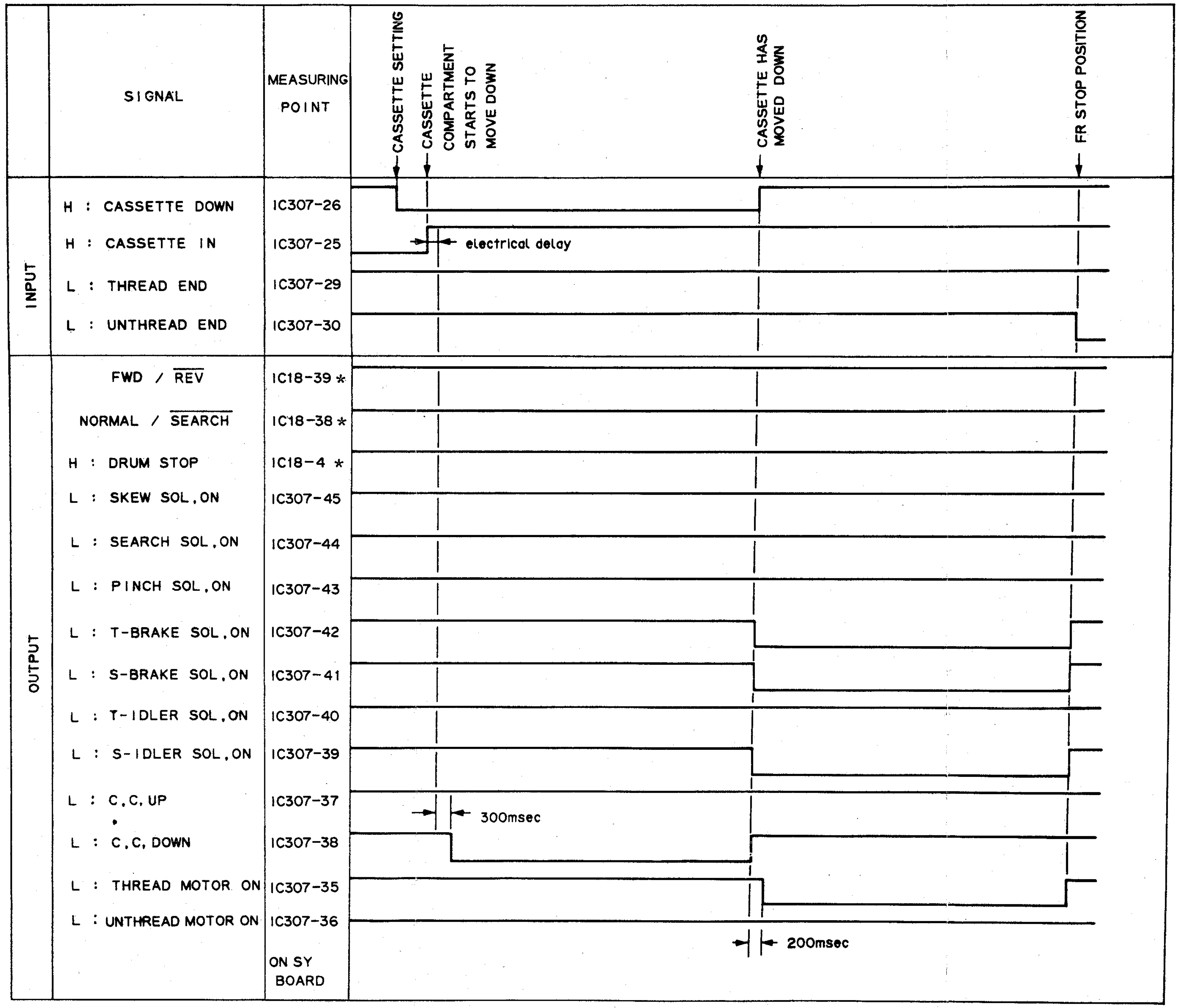
2-12. TIMING CHART

Mode Conversion Diagram


CASSETTE IN
CASSETTE UP
①
②
CASSETTE DOWN
CASSETTE UP
①
②
FR THREAD
FR UNTHREAD
①
②
FF
③
FR STOP
④
REW
⑤
PAUSE
⑦
⑦
THREAD END
DUB REC PLAY
⑤
⑥
⑦
⑦
⑦
SEARCH FWD
⑤
⑥
⑦
SEARCH REV
LONG PAUSE
⑥
⑤
⑥
⑧
⑧
⑦
PAUSE

NOTE : Number in the Figure means title number of Timing chart.

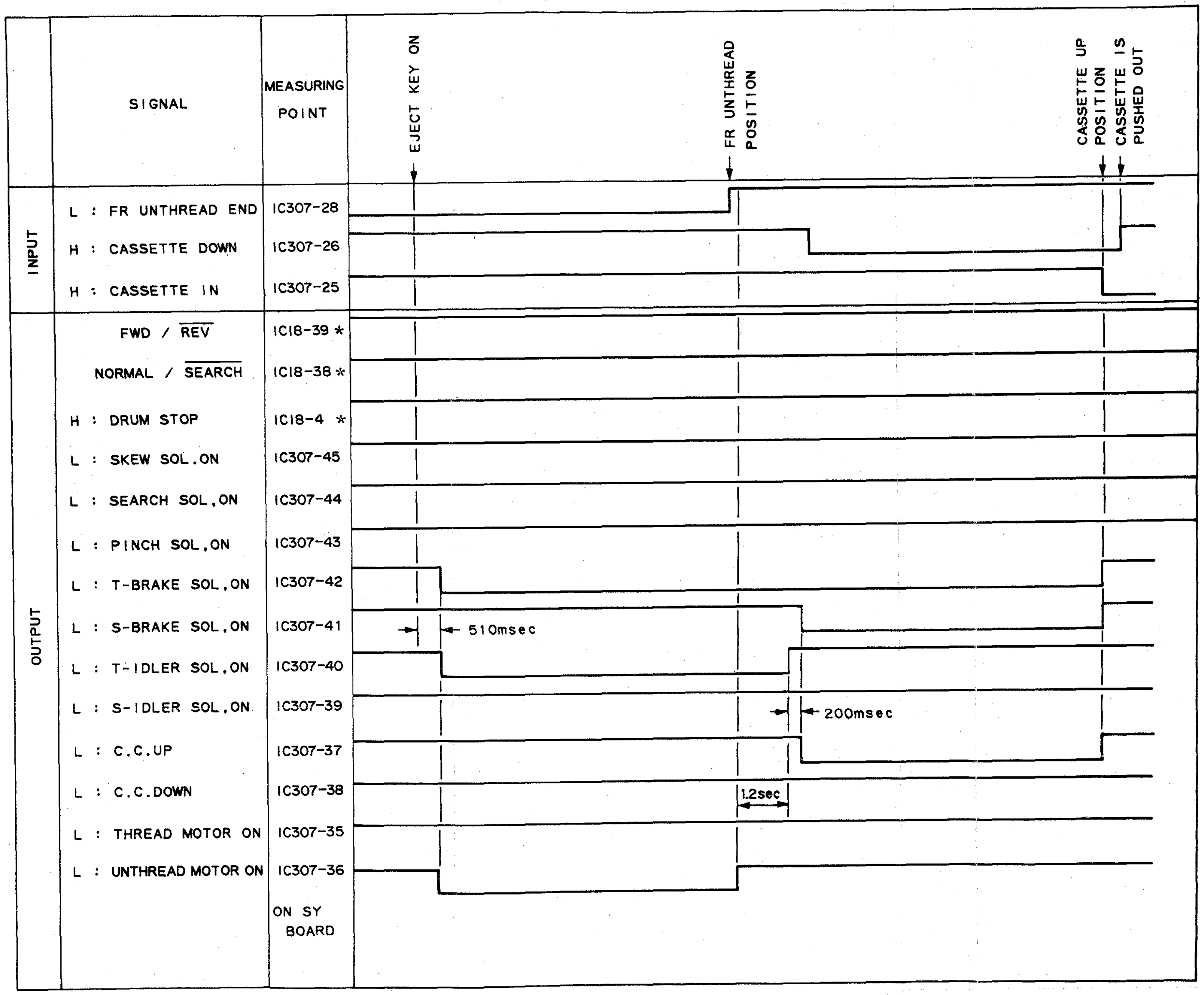
1. THREADING OPERATION (CASSETTE IN→CASSETTE DOWN→FR STOP POSITION)


SIGNAL
MEASURING POINT
CASSETTE SETTING
CASSETTE COMPARTMENT STARTS TO MOVE DOWN
CASSETTE HAS MOVED DOWN
FR STOP POSITION
INPUT
H : CASSETTE DOWN
IC307-26
H : CASSETTE IN
IC307-25
electrical delay
L : THREAD END
IC307-29
L : UNTHREAD END
IC307-30
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : DRUM STOP
IC18-4 *
L : SKEW SOL.ON
IC307-45
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C. UP
IC307-37
300msec
L : C.C. DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
200msec
ON SY BOARD

* NOTE: IC18 is on the SV board

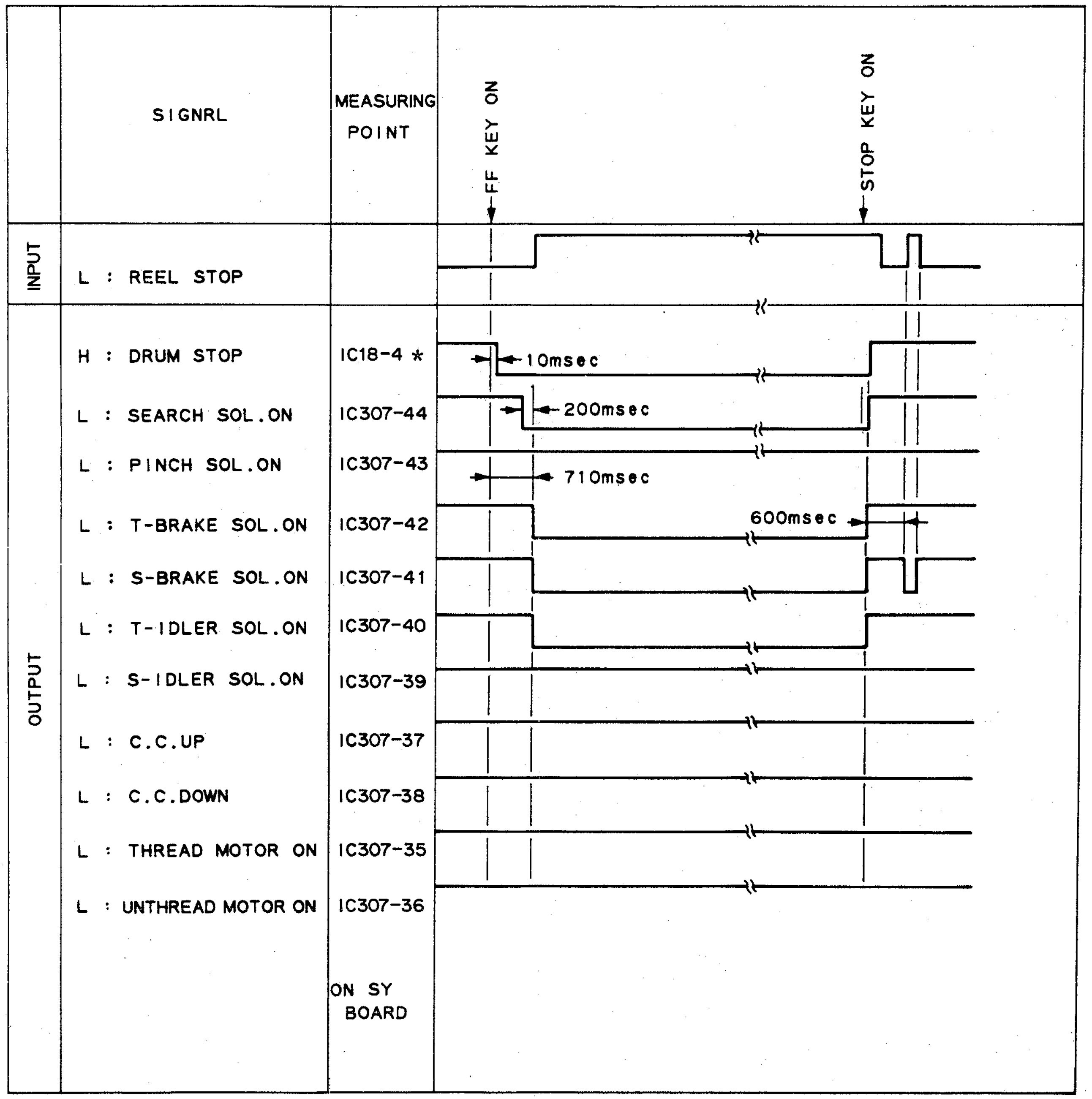
C.C. = CASSETTE UP COMPARTMENT

2. UNTHREADING OPERATION (FR STOP POSITION → FR UNTHREAD END POSITION → CASSETTE UP)


SIGNAL
MEASURING POINT
EJECT KEY ON
FR UNTHREAD POSITION
CASSETTE UP POSITION
CASSETTE IS PUSHED OUT
INPUT
L : FR UNTHREAD END
IC307-28
H : CASSETTE DOWN
IC307-26
H : CASSETTE IN
IC307-25
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : DRUM STOP
IC18-4 *
L : SKEW SOL.ON
IC307-45
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
510msec
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
200msec
L : C.C.UP
IC307-37
L : C.C.DOWN
IC307-38
1.2sec
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD

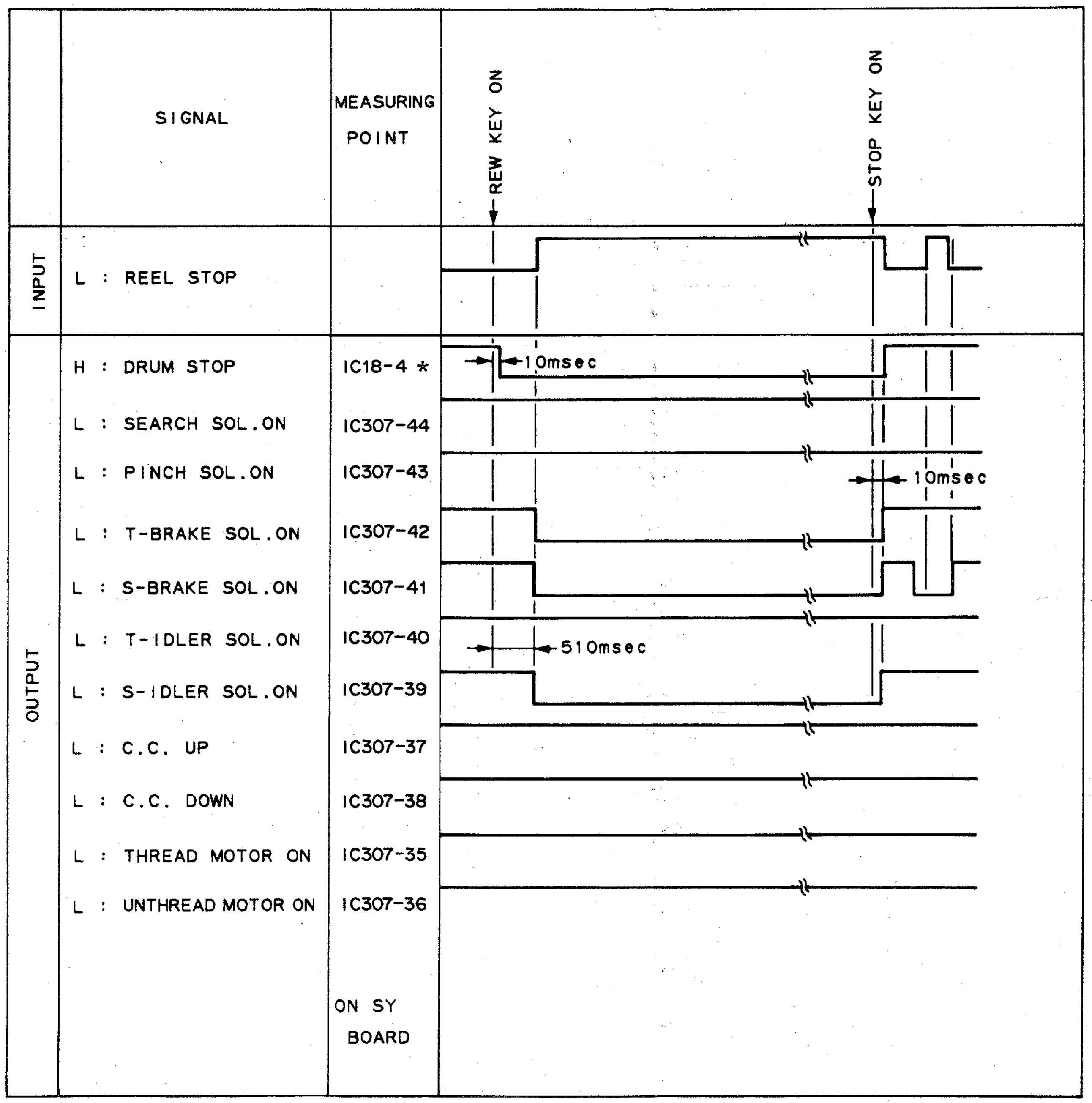
* NOTE: IC18 is on the SV board

3. FF MODE (FR STOP→FF→FR STOP)


SIGNRL
MEASURING POINT
FF KEY ON
STOP KEY ON
INPUT
L : REEL STOP
OUTPUT
H : DRUM STOP
IC18-4 *
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C.UP
IC307-37
L : C.C.DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD
10msec
200msec
710msec
600msec

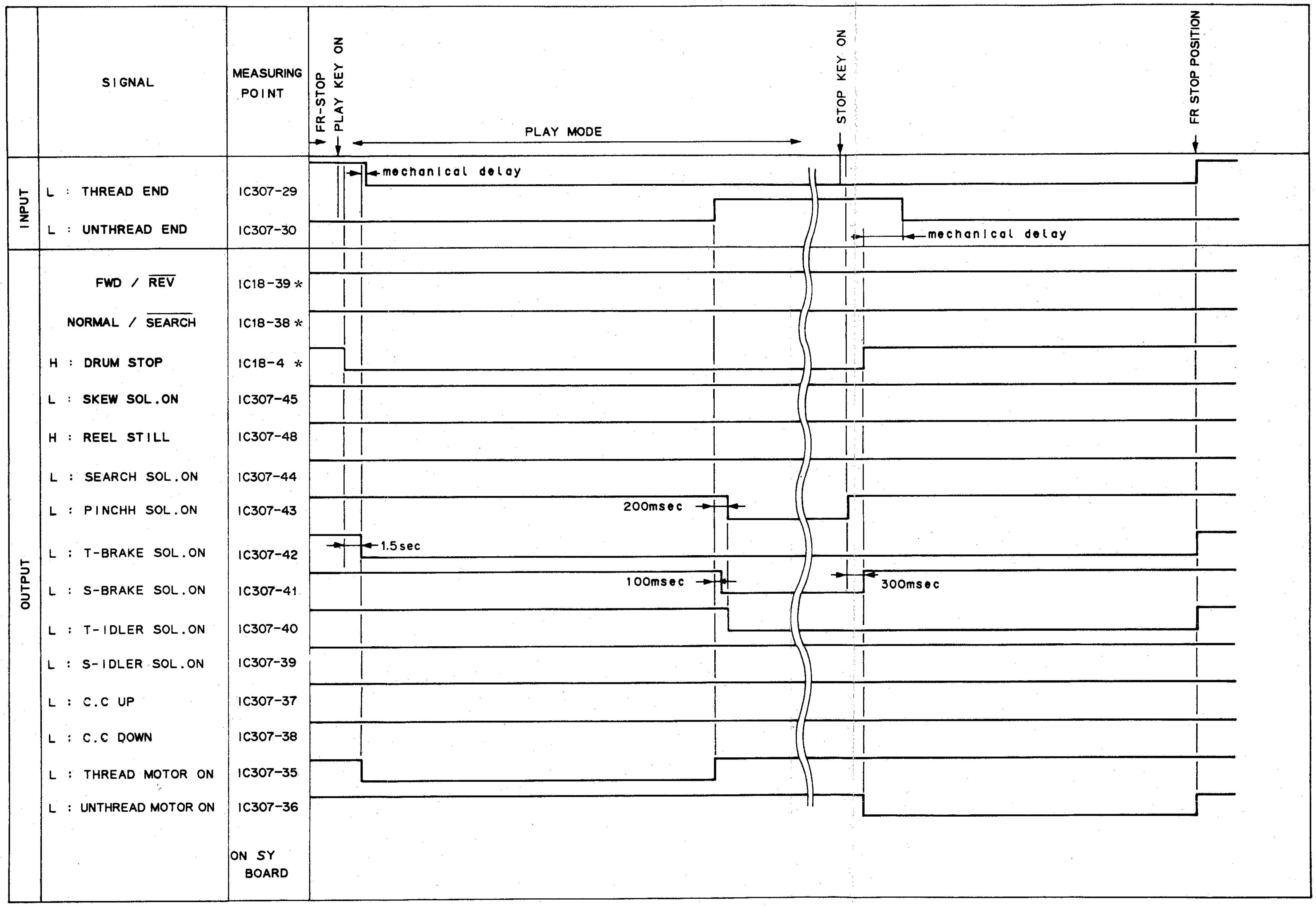
* NOTE: IC18 is on the SV board

4. REW MODE (FR STOP→REW→FR STOP)


SIGNAL
MEASURING POINT
REW KEY ON
STOP KEY ON
INPUT
L : REEL STOP
OUTPUT
H : DRUM STOP
IC18-4 *
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C. UP
IC307-37
L : C.C. DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD
10msec
10msec
510msec

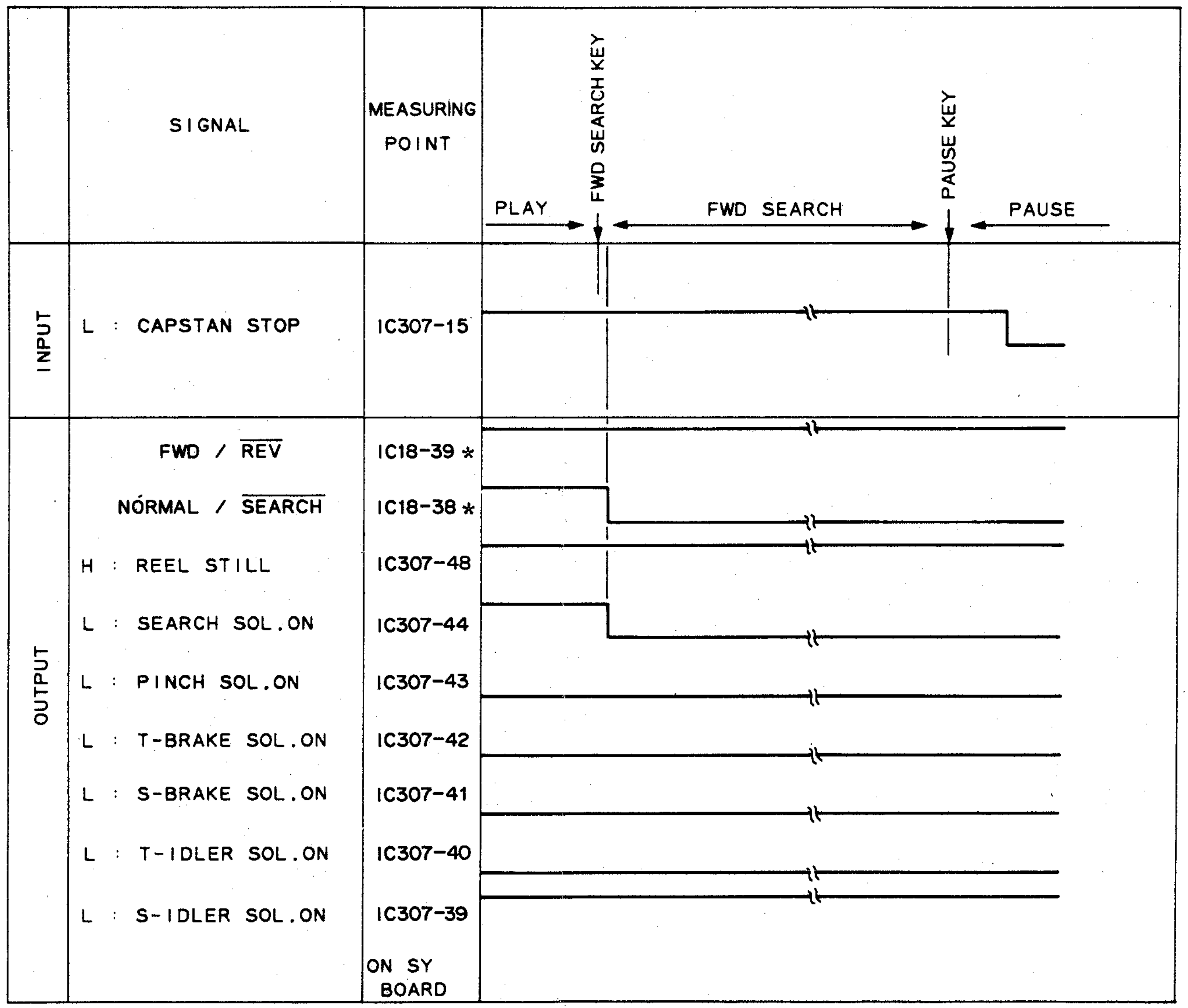
* NOTE: IC18 is on the SV board

5. PLAY MODE (FR STOP→PLAY→FR STOP)


SIGNAL
MEASURING POINT
FR-STOP
PLAY KEY ON
PLAY MODE
STOP KEY ON
FR STOP POSITION
INPUT
OUTPUT
L : THREAD END
IC307-29
L : UNTHREAD END
IC307-30
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : DRUM STOP
IC18-4 *
L : SKEW SOL.ON
IC307-45
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
L : PINCHH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
L : C.C UP
IC307-37
L : C.C DOWN
IC307-38
L : THREAD MOTOR ON
IC307-35
L : UNTHREAD MOTOR ON
IC307-36
ON SY BOARD
mechanical delay
mechanical delay
200msec
1.5sec
100msec
300msec

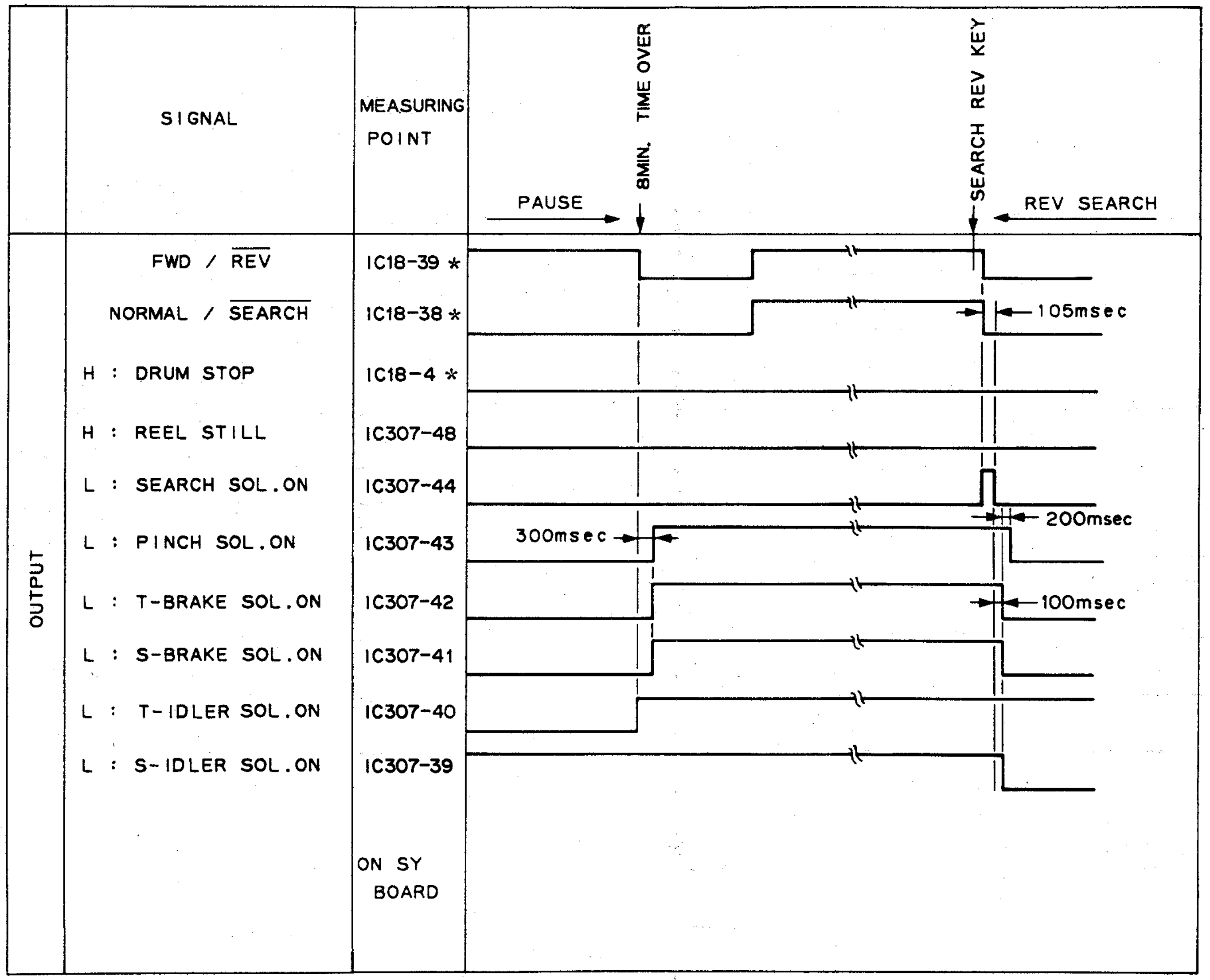
* NOTE: IC18 is on the SV board

6. PLAY→FWD SEARCH→SEARCH PAUSE


SIGNAL
MEASURING POINT
FWD SEARCH KEY
PAUSE KEY
PLAY
FWD SEARCH
PAUSE
INPUT
L : CAPSTAN STOP
IC307-15
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
L : PINCH SOL.ON
IC307-43
L : T-BRAKE SOL.ON
IC307-42
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
ON SY BOARD

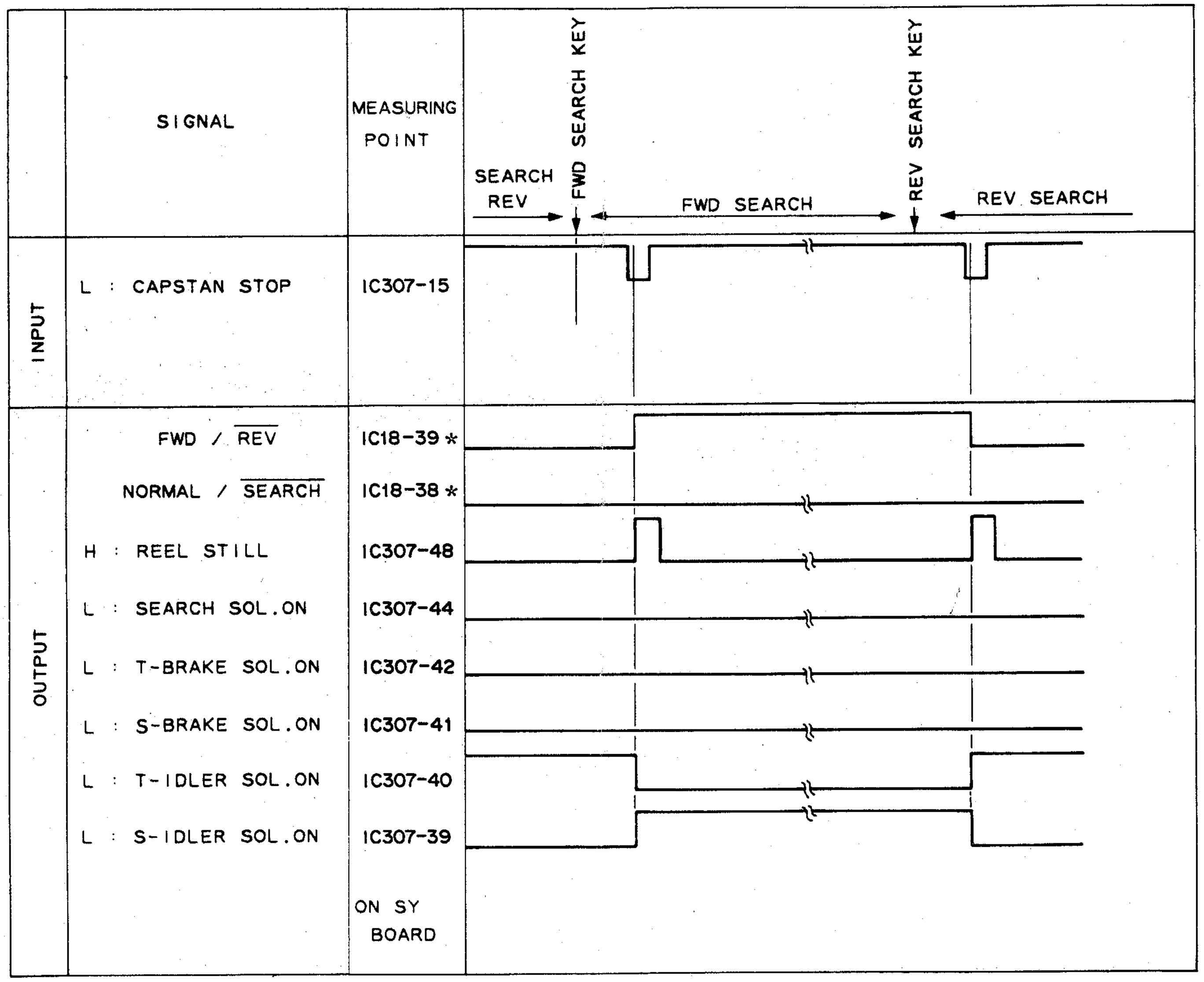
* NOTE: IC18 is on the SV board

7. PLAY PAUSE→LONG PAUSE→REV SEARCH


SIGNAL
MEASURING POINT
8MIN. TIME OVER
SEARCH REV KEY
PAUSE
REV SEARCH
OUTPUT
FWD / REV
IC18-39 *
NORMAL / SEARCH
IC18-38 *
105msec
H : DRUM STOP
IC18-4 *
H : REEL STILL
IC307-48
L : SEARCH SOL.ON
IC307-44
200msec
L : PINCH SOL.ON
IC307-43
300msec
L : T-BRAKE SOL.ON
IC307-42
100msec
L : S-BRAKE SOL.ON
IC307-41
L : T-IDLER SOL.ON
IC307-40
L : S-IDLER SOL.ON
IC307-39
ON SY BOARD

* NOTE: IC18 is on the SV board

8. REV SEARCH→(FWD PAUSE)→FWD SEARCH→(FWD PAUSE)→REV SEARCH



* NOTE: IC18 is on the SV board

2-13. FIXTURE

Part No.	Description
J-6001-820-A	Drum Eccentricity Gauge (3)
J-6001-830-A	Drum Eccentricity Gauge (2)
J-6001-840-A	Drum Eccentricity Gauge (1)
J-6001-930-A	Drum Eccentricity Gauge (4)
J-6009-830-A	Flatness Plate
J-6026-240-A	Adjustment Driver
J-6130-010-A	Reel Table Height Check Base Jig
J-6130-020-A	Reel Table Height Check Jig
J-6153-020-A	Dihedral Adjustment Driver
J-6150-140-A	Eccentricity Screwdriver (6 mm dia.)
J-6153-580-A	Pinch Lever Adjustment Jig
Y-2031-001-0	Cleaning Fluid
2-034-697-00	Cleaning Piece
3-702-216-01	Back Tension Adjustment Jig
3-702-391-01	Eccentricity Screwdriver (5 mm dia.)
7-661-018-01	Sony Oil
7-732-050-20	Tension Scale (50g)
7-732-050-30	Tension Scale (100g)
7-732-050-40	Tension Scale (200g)
7-732-050-50	Tension Scale (500g)
8-899-999-53	Torque Measurement Tape
8-960-015-04	Alignment Tape, RR5-3 SA
8-960-015-16	Alignment Tape, RR5-4 SB
8-960-037-02	Alignment Tape, RR2-1 SD
8-960-037-80	Alignment Tape, RR5-1 SD
9-911-053-00	Thickness Gauge

2-14. SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the unit to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis must not exceed 0.5mA (500 microamperes). Leakage current can be measured by any one of three methods.

(1) A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufactur's instructions to use these instruments.

(2) A battery-operated AC milliammeter. The Date Precision 245 digital multimeter is suitable for this job.

(3) Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V; therefore, analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable.
(Refer to Fig. A)

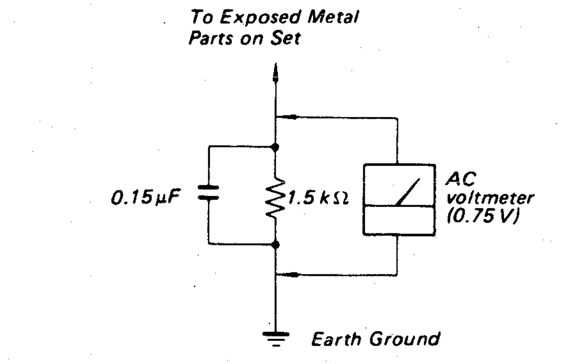


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from the unit.

3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

(1) Cleaning of the video heads.
- . Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.
  (Never turn the motor by the electric power for the cleaning.)
- . Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.

(2) Cleaning of tape running system
- . Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.

(3) Cleaning of drive system
- . Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the unit.

3-3. HOURS METER

This VTR has an hours meter. The hours meter has two display modes, and these modes can display on the Time Counter Display.

Two display modes are as follows:

1. Displays the accumulated time of the rotation of the upper drum. The data from 0 to 15000 hours can be displayed.
2. Displays the accumulated power-on time. The data from 0 to 15000 hours can be displayed.

It is recommended to perform the periodic check and maintenance based on the hours meter.

How to put the Time Counter Display into the Hours Meter mode, please refer to Section 2-11. Dial Menu Operation.

HOURS METER mode:

. Menu No.205: HOURS METER (DRUM)
Rotation time of the upper drum

. Menu No.206: HOUR METER
Power-on time

3-4. OTHERS

(1) Sony oil
- . Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)
  Sony oil: Part No. 7-661-018-01
- . Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ◆ : Replacement ◇ : Check (Adjustment) ◎ : Rotation

Item	Operating hours(H)													
	Part No.	Menu No.	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Reference	Reference of Exploded View
Tape path block	———	205	○	○	○	○	○	○	○	○	○	○	———	———
Upper drum ass'y (DUR-43-R)	A-6709-615-A	205	○	◆	○	◆	○	—	○	◆	○	◆	4-1	16-13
Head drum ass'y (DUH-43B-R)	A-6709-674-A	205	○	○	○	○	○	◆	○	○	○	○	4-2	16-13
Audio/CTL head	8-825-578-22	205	○	○	○	○	○	◆	○	○	○	○	4-7	16-13
Time code head (PP295-58)	8-825-771-31	205	○	○	○	○	○	◆	○	○	○	○	———	16-15
FR CTL head (PP170-58)	8-825-514-20	205	○	○	○	○	○	◆	○	○	○	○	4-4	16-15
Full erase head	8-825-544-20	205	○	○	○	○	○	◆	○	○	○	○	———	16-15
Pinch roller ass'y	A-6750-223-A	205	○	◆	○	◆	○	◆	○	◆	○	◆	4-9	16-9
Capstan motor (BHF-1915B)	8-835-258-02	205	—	—	—	—	—	◆	—	—	—	—	4-3	16-13
Reel driving motor (FN30-T26N1E)	8-835-178-01	205	—	—	—	—	◆	—	—	—	—	◆	———	16-3
Threading motor (DNR-4700A)	1-541-376-11	205	—	—	—	—	◆	—	—	—	—	◆	4-10-2	16-9
Tape guide, TG-3	3-660-102-00	205	○	○	○	○	○	◎	○	○	○	○	———	16-13
Tape guide, TG-4	3-718-388-01	205	○	○	○	○	○	◎	○	○	○	○	———	16-13
* Reel belt	3-668-785-00	205	○	○	○	◆	○	○	○	◆	○	○	———	16-7
* Threading belt	3-672-737-01	205	○	○	○	◆	○	○	○	◆	○	○	4-10-3	16-9
Reel table ass'y	A-6739-017-A	205	○	○	○	○	○	◆	○	○	○	○	———	16-3, 16-5
* Idler tire ass'y	X-3646-026-0	205	○	○	○	◆	○	○	○	◆	○	○	———	16-5
* Tension regulator band ass'y	X-3668-707-0	205	—	—	—	◆	—	—	—	◆	—	—	———	16-3
* Lining holder ass'y	X-3668-749-0	205	—	—	—	◆	—	—	—	◆	—	—	———	16-3, 16-5
* R brake ass'y	X-3668-737-0	205	—	—	—	◆	—	—	—	◆	—	—	———	16-5
Idler pulley block ass'y	A-6740-069-B	205	—	—	—	—	—	◆	—	—	—	—	———	16-7
Worm pulley ass'y	X-3668-743-0	205	—	—	—	◆	—	—	—	◆	—	—	———	16-9
Check the FWD back tension	———	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-5	———
Check the brake torque	———	205	—	◇	—	◇	—	◇	—	◇	—	◇	6-1	———

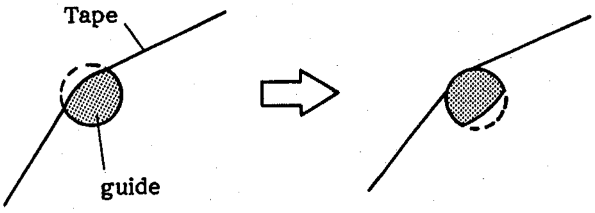
(NOTE 1) The Upper Drum Ass'y is included in the Head Drum Ass'y. When replacing the Head Drum Ass'y, the Upper Drum Ass'y is replaced together.

(NOTE 2) Be sure to clean the tape run area in reparing.

(NOTE 3) Operating hours (such as replacement, check and so on) will be defferent in operating environment.

(NOTE 4) We recommend you to replace early the * marked parts for maintenance of the best condition.

(NOTE 5) ◎ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



SECTION 4
REPLACEMENT OF MAJOR PARTS

4-1. REPLACEMENT OF THE UPPER DRUM

- The Rotary Video Heads cannot be replaced individually. The entire Upper Drum Assembly should be replaced when any of these heads fails.

Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)

Replacement procedure:

(1) Unsolder the eight leads of the video head from the printed circuit board. Remove the two fixing screws and then remove the Upper Drum Assembly from the Head Drum Assembly.

(2) Clean the matching surfaces of the flange and new Upper Drum Assembly with a cloth moistened with cleaning fluid. (If there is a spacer between the drum and the flange, it should be left on the flange. If the spacer is lost, correct interchangability cannot be obtained.)

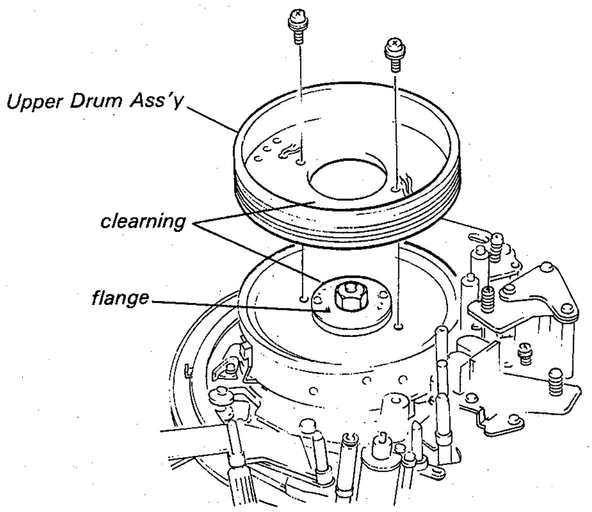
(3) Place the Upper Drum Assembly so that the three red leads matches side "B" of the printed circuit board as shown in the figure. Thread the two fixing screws snugly but do not tighten them.

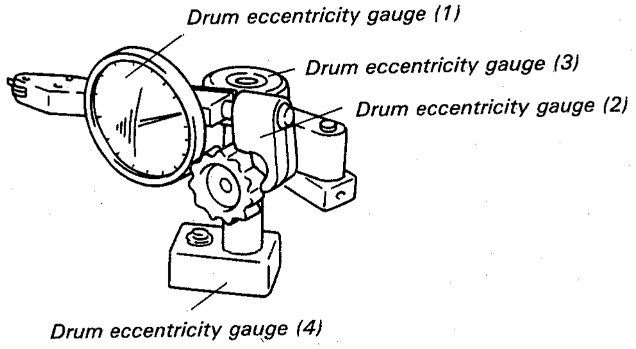
Adjustment procedure:

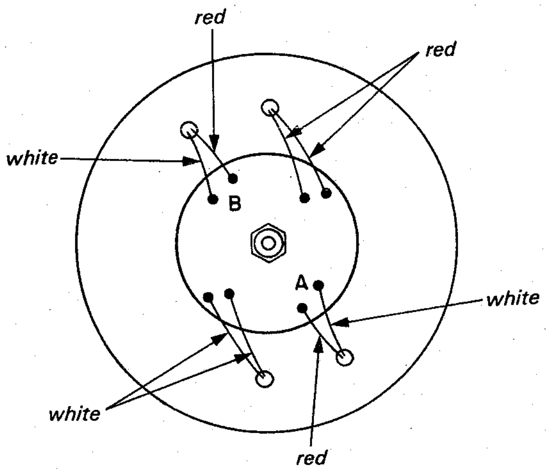
(1) Remove the S Guard Block. (The connector at the bottom of the S Guard is inserted into the connector on the chassis.)

(2) Assemble the Drum Eccentricity Gauges (1), (2), (3) and (4) as shown in the figure. Set the assembled gauges on the unit so that the probe tip is positioned at a point about 5 mm from the top edge of the Upper Drum.

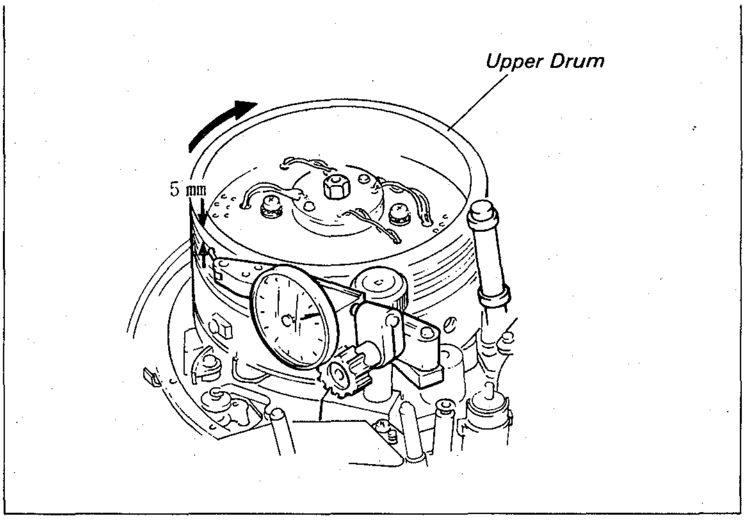
(3) Turn the Upper Drum slowly in the clockwise direction and check that the gauge deflection is within 5 microns during one complete revolution of the Upper Drum. If it is within specification, proceed with the Step (5). If it is not, perform Step (4).


Upper Drum Ass'y
clearning
flange


Drum eccentricity gauge (1)
Drum eccentricity gauge (3)
Drum eccentricity gauge (2)
Drum eccentricity gauge (4)

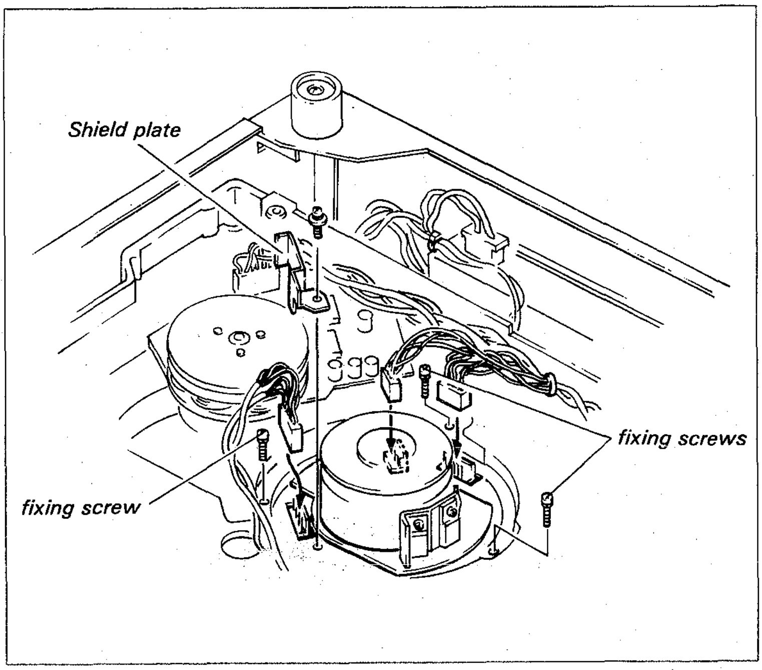

red
red
white
B
A
white
white
red

(4) Tap the inside of the Upper Drum with a nylon hammer or a screwdriver handle until the gauge deflection remains within 5 microns.
(5) After the adjustment, alternately tighten the two fixing screws of the Upper Drum. (Tightening torque: 14 to 16 kg-cm)
(6) After tightening the screws, check that the gauge deflection is within 5 microns.
(7) Solder the eight leads from the video heads to the printed circuit board as shown in the figure.
(8) Install the S Guard Block. (Insert the connector at the bottom of the S Guard Block securely into the connector on the chassis.)
(9) Adjust as described in Section 4-11.



4-2. REPLACEMENT OF THE DRUM ASSEMBLY

Replacement procedure:
(1) Remove the Shield Plate.
(2) Disconnect the three connectors of the drum assembly on the back of the unit.
(3) Remove the three fixing screws which hold the drum.
(4) Install the drum on the base while turning the drum assembly in the clockwise direction when viewed from top of the unit.
(5) Connect the three connectors.
(6) Tighten the fixing screw of the Shield Plate.
(7) Adjust as descrebed in Section 4-11.



4-3. REPLACEMENT OF THE CAPSTAN MOTOR

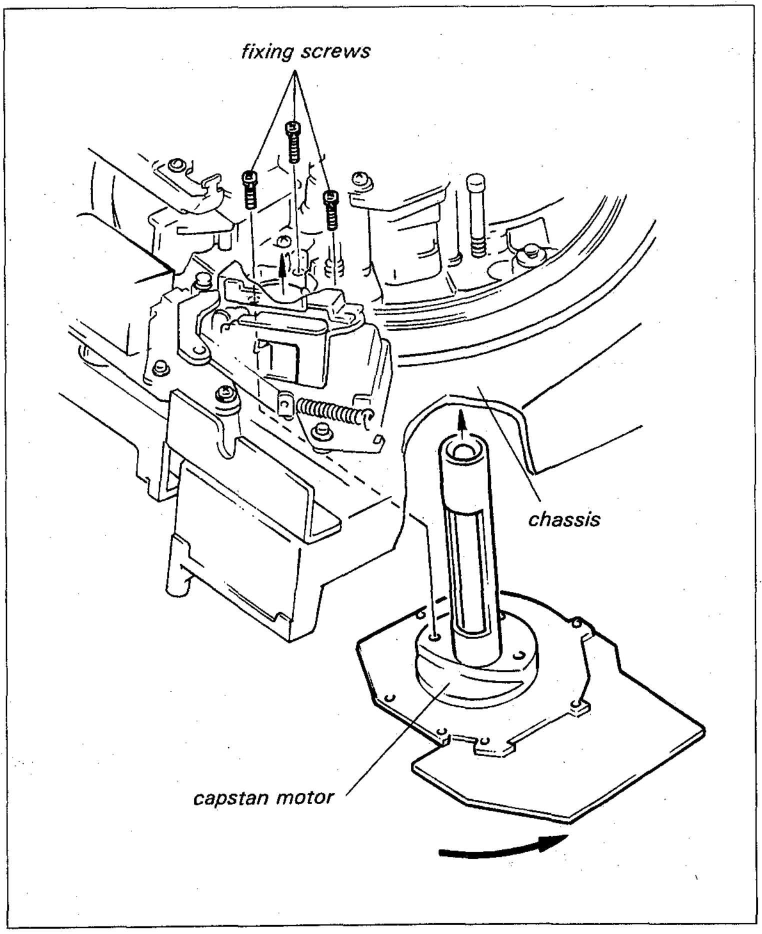
Replacement procedure:

(1) Remove the Capstan Motor from the unit.

(2) Install the new Capstan Motor and thread the three fixing screws snugly but do not tighten them.

(3) Tighten the fixing screws while turning the Capstan Motor in the direction of the arrow.

(4) Adjust as described in Section 4-11.


fixing screws
chassis
capstan motor

4-4. REPLACEMENT OF THE FR CTL (CTL PB) HEAD

Replacement procedure:

(1) Disconnect CN341 and CN342 on the EC-32 Board.

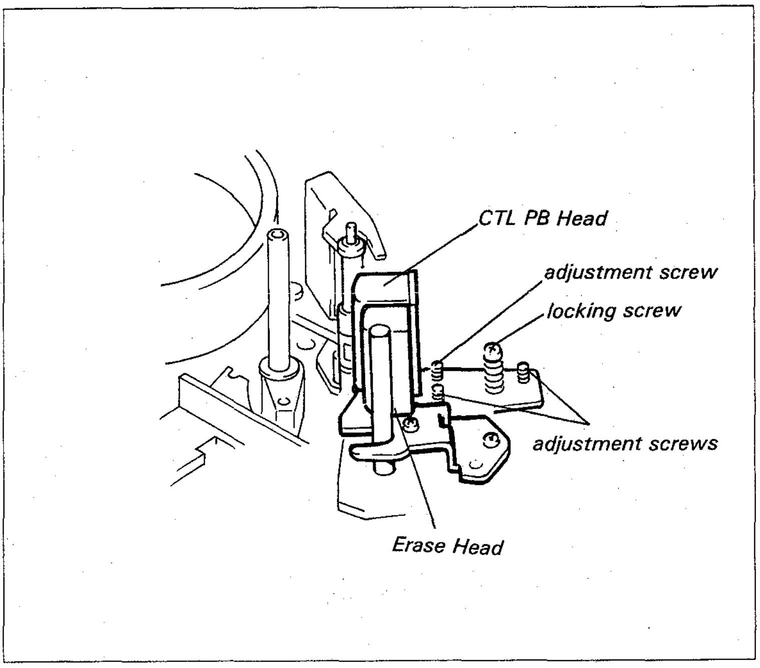
(2) Remove the locking screw and remove the CTL PB Head Block from the unit. Never tighten or loosen the three adjustment screws.

(3) Remove the two fixing screws at the bottom of the bracket and remove the head.

(4) Remove the EC-32 Board from the head and solder it to the new head.

(5) Perform steps (1) to (3) in reverse order.

(6) Adjust as described in Section 4-11.


CTL PB Head
adjustment screw
locking screw
adjustment screws
Erase Head

4-5. REPLACEMENT OF THE S DRAWER ROLLER

Replacement procedure:

(1) Put the unit into the EJECT completion mode without a cassette tape.

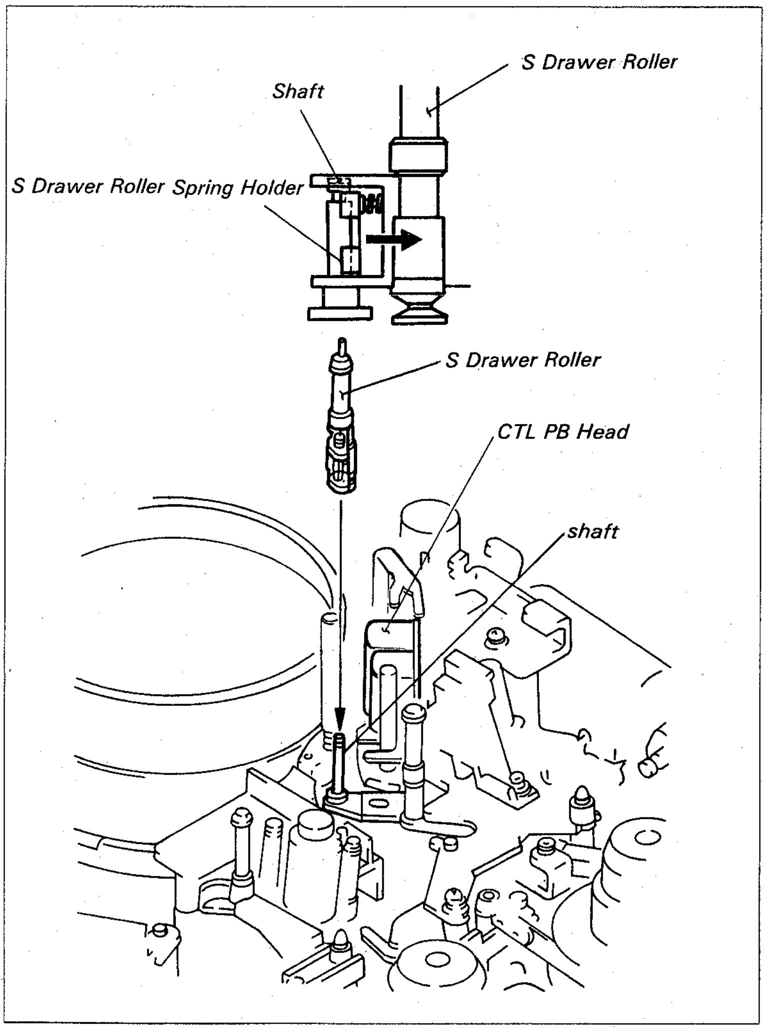
(2) Turn the pulley of the Gear Box by hand until the S Drawer Roller comes in front of the CTL PB Head.

(3) Remove the S Drawer Roller from the shaft while pushing the spring holder in the direction of the arrow.

(4) Smear a little Sony Grease in the notch at the bottom of the new S Drawer Roller.

(5) While pushing the spring holder in the direction of the arrow, install the new S Drawer Roller onto the shaft until the S Drawer Roller locks to the shaft.

(6) Adjust as described in Section 4-11.


S Drawer Roller
Shaft
S Drawer Roller Spring Holder
S Drawer Roller
CTL PB Head
shaft

4-6. REPLACEMENT / ADJUSTMENT OF THE TAPE GUIDES ON THE THREADING RING

- There are three tape guides on the Threading Ring. This section describes the replacement of the three tape guides and the width adjustment of the two tape guides.

Tool: slide vernier callipers of equivalent
L-shaped hexagonal wrench
(across flat has 1.27 mm)

Mode: Put the unit into the FR-STOP mode without a cassette tape.

Replacement procedure:

(1) Loosen the set screw of the boss and remove the guide shaft.

(2) Clean the guide shaft with a cloth moistened with cleaning fluid.

(3) Assemble the guide.

(4) Adjust the height of the sub-ring guide as shown in the figure.

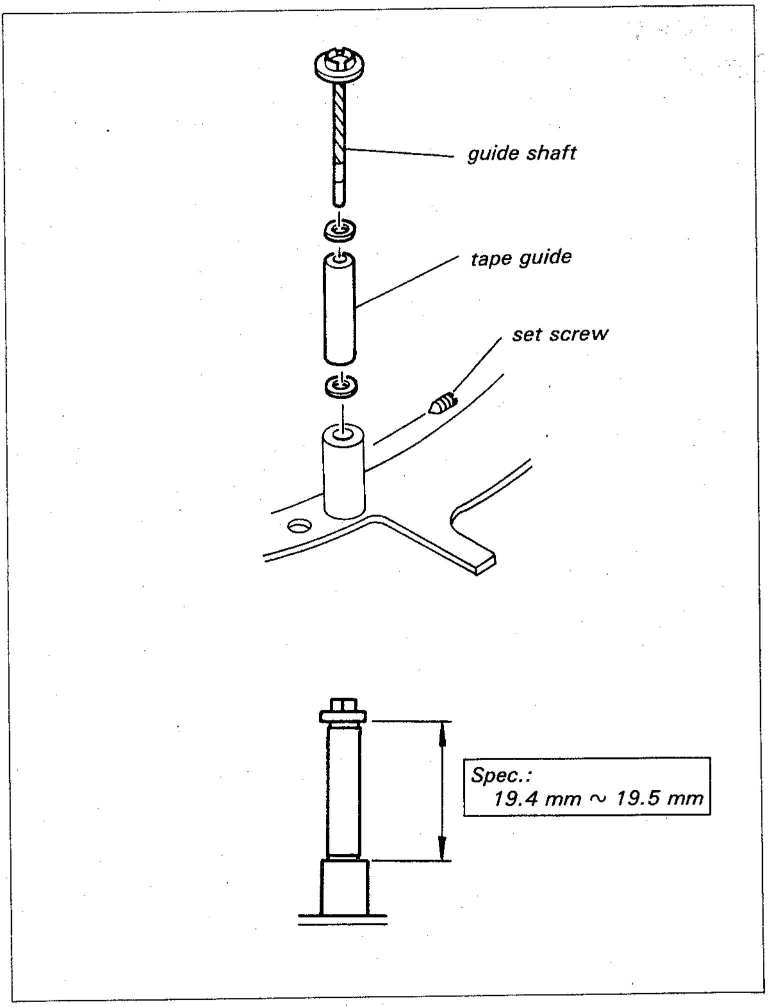
(5) Adjust as described in Section 4-11.

Adjustment procedure:

(1) Adjust the height of the tape guide and tighten the set screw of the boss. Check that the guide roller turns smoothly.

(2) Insert the cassette tape and put the unit into the PLAY mode. Check that the tape runs along the upper flange of the tape guide without curling.

(3) Adjust as described in Section 4-11.



Spec.:
19.4 mm ~ 19.5 mm

4-7. Replacement of the Audio/CTL Head

Replacement procedure:

(1) Remove the Audio/CTL Head Block from the unit after removing the three fixing screws as shown in the figure.

(2) Remove the Audio/CTL Head and the shield case (F and B) after removing the two fixing screws as shown in the figure.

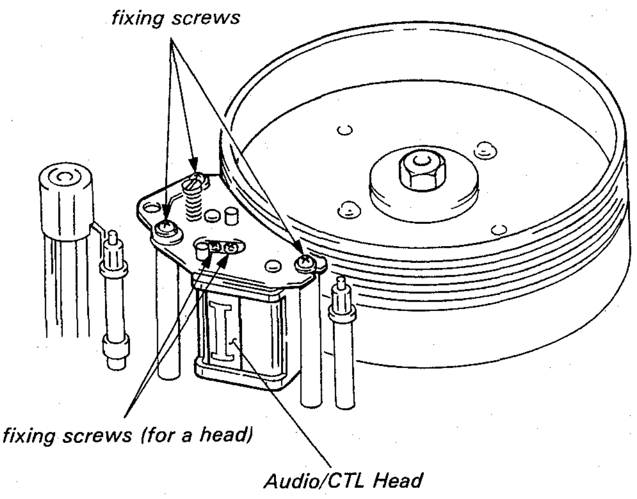
(3) Remove the two fixing screws from the shield case.

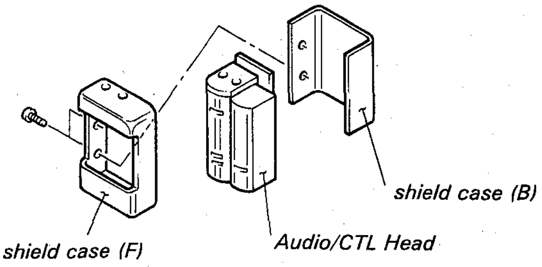
(4) Unsolder the ten leads from the printed circuit board and remove the DUS-92 Board from the head.

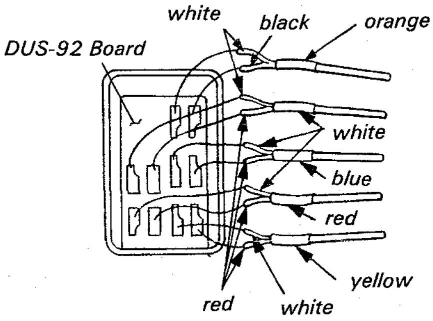
(5) Replace the head with a new one and solder the leads to the DUS-92 Board as shown in the figure.

(6) Perform steps (1) to (3) in reverse order.

(7) Adjust as described in Section 4-11.


fixing screws
fixing screws (for a head)
Audio/CTL Head


shield case (B)
shield case (F)
Audio/CTL Head


white
black
orange
DUS-92 Board
white
blue
red
yellow
red
white

4-8. REPLACEMENT OF THE THREADING RING

Replacement procedure:

(1) Remove the E Head Base Block from the unit after removing the three fixing screws.

(2) Remove the S Guard Assembly and the FR Detector from the unit.

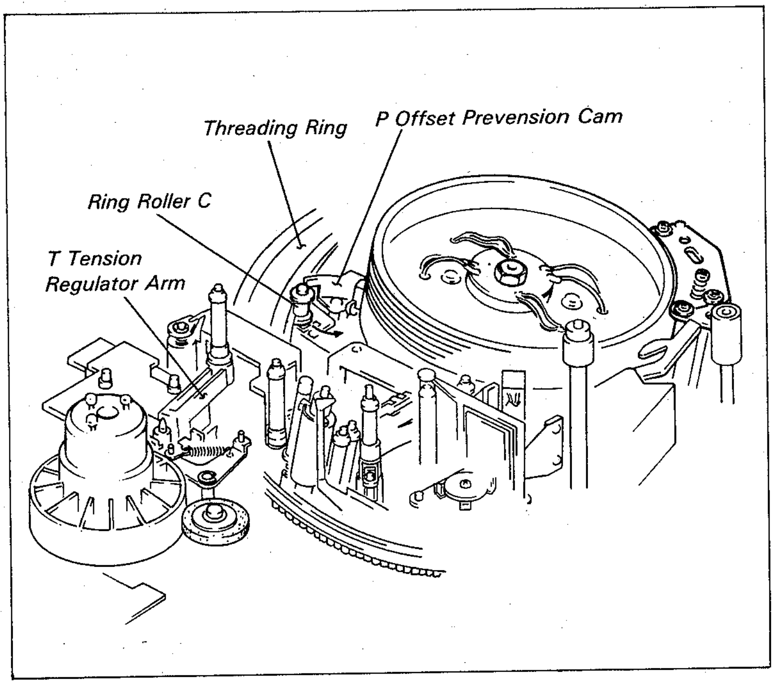
(3) Loosen the two fixing screws from the Threading Gear Block and remove it from the Threading Ring.

(4) Loosen the fixing screw and then move the Ring Roller (C) and the P Offset Prevention Cam in the direction of the arrow.

(5) Remove the Threading Ring from the unit and replace it with a new one.

(6) Perform steps (1) to (4) in reverse order.

(7) Adjust as described in Section 4-11.


Threading Ring
P Offset Prevension Cam
Ring Roller C
T Tension
Regulator Arm

4-9. REPLACEMENT OF THE PINCH ROLLER

Replacement procedure:

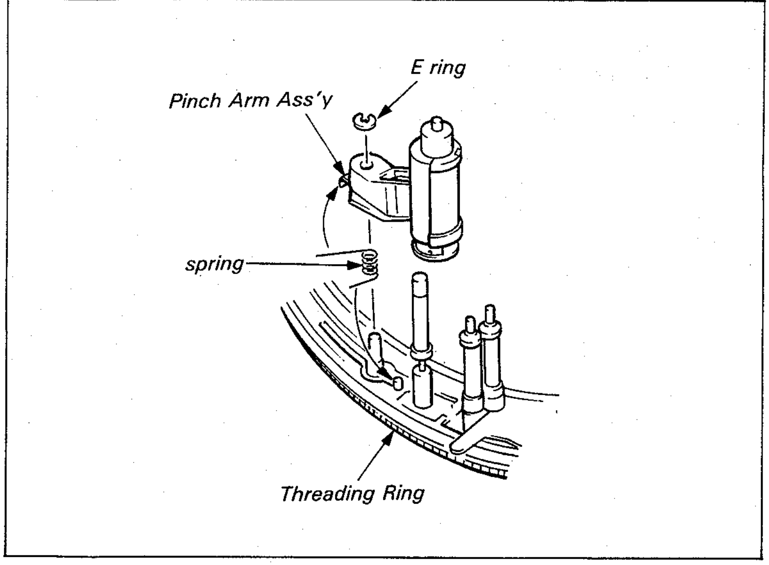
(1) Turn the pulley of the Gear Box until the S Drawer Roller is in front of the CTL PB Head.

(2) Remove the Pinch Arm Assembly from the Threading Ring after removing the E ring.

(3) Replace the Pinch Roller Assembly with a new one.

(4) Install the Pinch Roller Assembly on the Threading Ring as shown in the figure.

(5) Adjust as described in Section 4-11.



4-10. REPLACEMENT OF THE THREADING GEAR BOX SYSTEM

4-10-1. Replacement of the Threading Gear Box

Replacement procedure:

(1) Put the unit into the EJECT mode and turn the power OFF.

(2) Remove the T Tape Sensor from the gear box after removing the fixing screw.

(3) Remove the two fixing screws of the gear box after turning the pulley 1 revolution in the direction of arrow A. Move the gear box in the direction of arrow B and remove it from the unit.

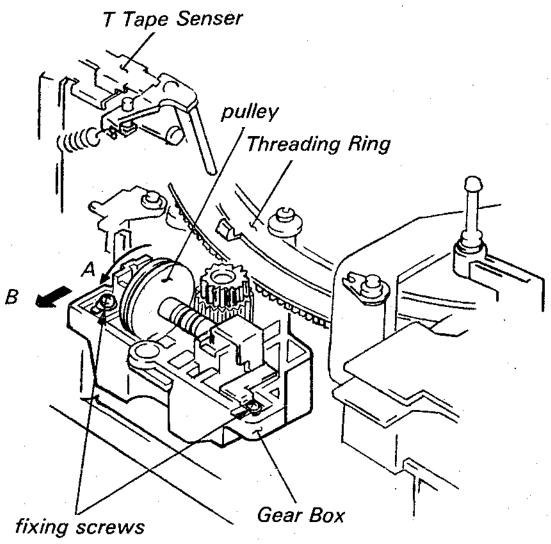
(4) Remove the harness from the clamper and disconnect CN511 from the SY-141 Board.

(5) Replace the gear box with a new one.

(6) Perform steps (3) and (4) in reverse order.

(7) Put the gear box on the chassis and thread the two fixing screws snugly but do not tighten them. Tighten the two fixing screws of the gear box after meshing the Threading Ring to the gear.

(8) Adjust as described in Section 4-11.



4-10-2. Replacement of the Threading Motor

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Replacement procedure:

(1) Perform steps (1) to (4) of Section 4-10-1, Replacement of the Threading Gear Box.

(2) Remove the gear after removing the stop ring.

(3) Remove the belt from the motor pulley. Remove the plate from the frame after removing the fixing screw.

(4) Remove the pulley while pushing the hook in the direction of the arrow as shown in the figure.

(5) Remove the motor block from the frame after removing the two fixing screws.

(6) Loosen the set screw and remove the motor pulley.

(7) Remove the motor from the motor bracket after removing the two fixing screws.

(8) Remove the shield case and unsolder the LM-13 Board. Replace the motor with a new one.

(9) The pole of the motor is as shown in the figure. Solder the plus terminal of the motor to the plus pad of the LM-13 Board.

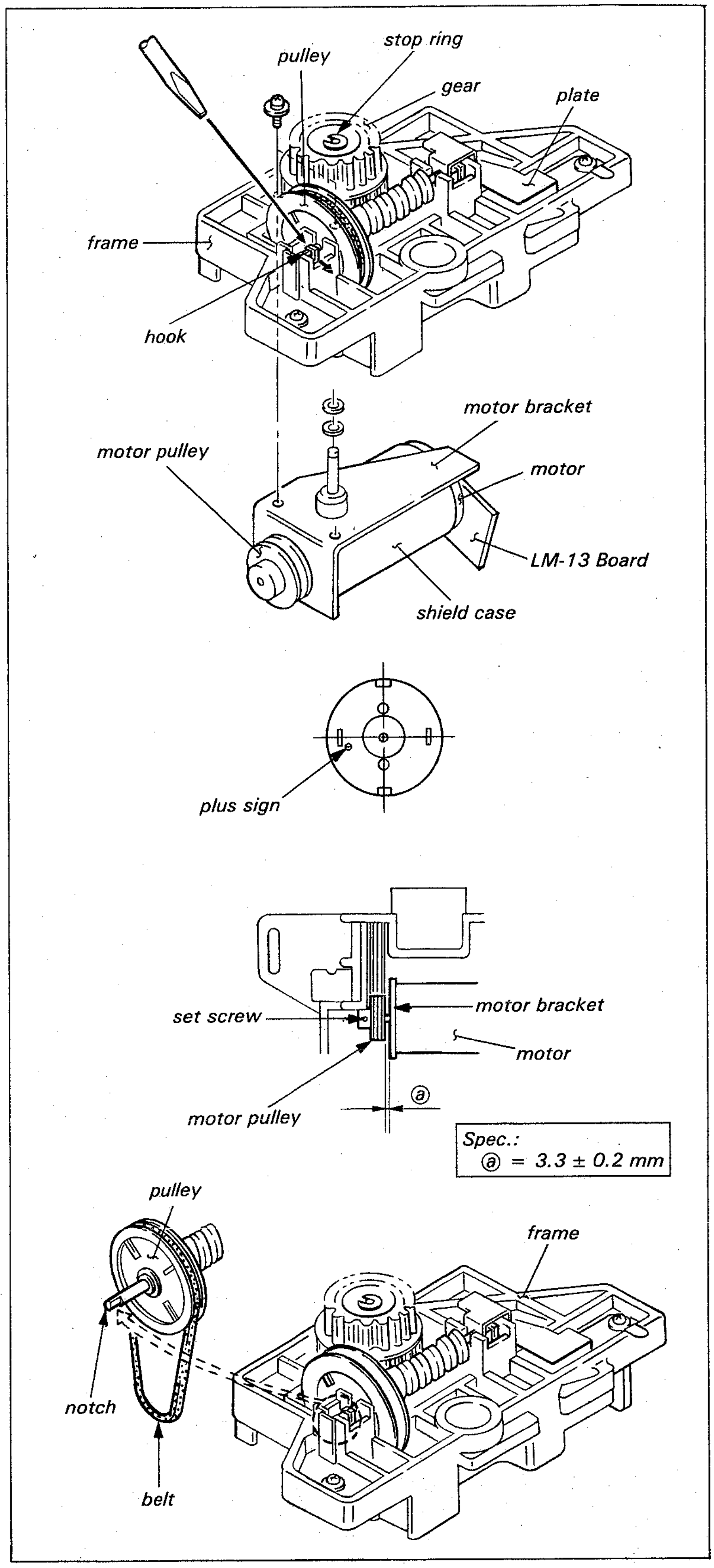
(10) Install the shield case to the motor.

(11) Install the motor to the frame as shown in the figure. Peform steps (4) to (6) in reverse order. Check that the clearance between the motor pulley and the bracket meets the required specification.

(12) Hook the belt to the pulley and install the pulley on the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

(13) Hook the belt to the motor pulley. Check that the belt is not twisted.

(14) Check as described in Section 4-11.


pulley
stop ring
gear
plate
frame
hook
motor bracket
motor pulley
motor
LM-13 Board
shield case
plus sign
set screw
motor bracket
motor
motor pulley
ⓐ
pulley
frame
notch
belt

Spec.:
ⓐ = 3.3 ± 0.2 mm

4-10-3. Replacement of the Threading Belt

Replacement procedure:

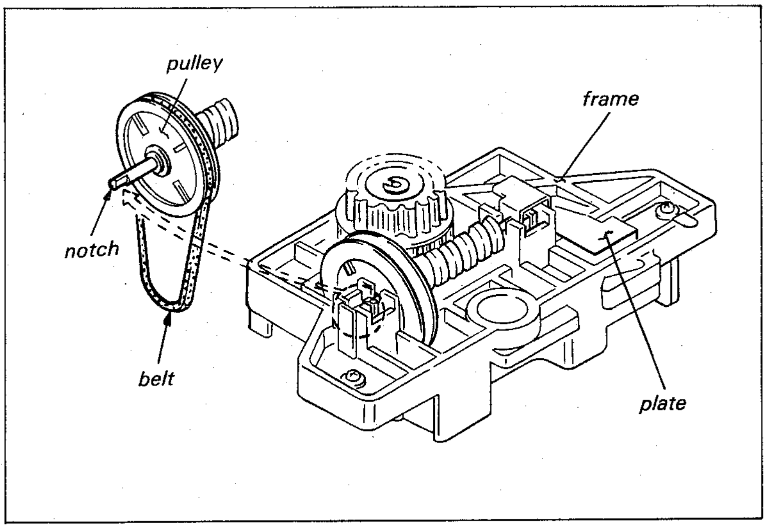
(1) Perform steps (1) to (3) in Section 4-10-2, Replacement of the Threading Motor.

(2) Clean the new belt and the groove of the pulley with a cloth moistened with cleaning fluid.

(3) Hook the belt to the pulley and install them to the frame. Be sure that the orientation of the notch of the pulley shaft is as shown in the figure.

(4) Install the plate to the frame and hook the belt to the Motor pulley. Check that the belt is not twisted.

(5) Check as described in Section 4-11.



4-11. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Nambers in parenthesis refer to Section Nos.)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (5-3-1) ——→ Gear Box Position Adjustment (5-3-2) ——→ FR Detector Block Mounting Position Adjustment (5-3-4) ——→ Pinch Roller Position Adjustment (5-3-3) ——→ Pinch Lever Azimuth Adjustment (5-10) ——→ Pinch Lever Pre-set Adjustment (5-4-1) ——→ Pinch Roller Pre-set Adjustment (5-4-2) ——→ Leaf Spring Position Adjustment (5-9) ——→ F FWD/REW Modes Tape Path Adjustment (7-1) ——→ T Correction Guide Slantness Adjustment (7-2) ——→ Tape Path Adjustment Around Pinch Roller (7-7) ——→ PLAY Mode Tape Path Adjustment (1) (7-4) ——→ PLAY Mode Tape Path Adjustment (2) (7-5) ——→ REV Mode Tape Path Adjustment (7-6) ——→ Video Tracking Adjustment (7-8-1) ——→ Time Code Head Adjustment (7-3) ——→ CTL PB Head Height/Azimuth/Zenith Adjustments (7-8-3) ——→ Audio/CTL Head Position Adjustment (7-8-8) ——→ Time Code Head Position Adjustment (7-8-10) ——→ Video Tracking Adjustment (check) (7-8-1)

Replacement of Pinch Roller

Pinch Roller Self Alignment Adjustment (5-3-3) ——→ Pinch Roller Pre-set Adjustment (5-4-2) ——→ PLAY Mode Tape Path Adjustment (2) (7-5) ——→ REV Mode Tape Path Adjustment (7-6) ——→ Tape Path Adjustment Around Pinch Roller (7-7) ——→ Video Tracking Adjustment (check)(7-8-1)

Replacement of Take-up Reel Table

Reel Table Height and Vertical Play Adjustment (5-1-2) ——→ T Brake Torque Adjustment (6-1-2) ——→ REW Brake Torque Adjustment (6-1-3) ——→ F FWD/REW Torque Adjustment (6-2) FWD Torque Adjustment (6-3) ——→ F FWD/REW Modes Tape Path Adjustment (7-1)

Replacement of Supply Reel Table

Reel Table Height and Vertical Play Adjustment (5-1-2) ——→ S Brake Torque Adjustment (6-1-1) ——→ F FWD/REW Torque Adjustment (6-2) ——→ REV Torque Adjustment (6-4) ——→ FF Back Tension Adjustment (6-5) ——→ FWD Back Tension Adjustment (6-6) ——→ Video Tracking Adjustment (check) (7-8-1)

Replacement of Brake Band

FF Back Tension Adjustment (6-5) ——→ FWD Back Tension Adjustment (6-6)

Replacement of Capstan Motor

Pinch Lever Right Angle Adjustment (5-10) ——→ Pinch Roller Self Alignment Adjustment (5-3-3) ——→ Capstan Search Speed Adjustment ——→ Capstan FWD/REV Detector Adjustment ——→ Capstan Free Speed Adjustment ——→ Capstan Stop Servo Adjustment ——→ PLAY Mode Tape Path Adjustment (2) (7-5) ——→ REV Mode Tape Path Adjustment (7-6) ——→ Tape Path Adjustment Around Pinch Roller (7-7) ——→ Video Tracking Adjustment (check)(7-8-1)

Replacement of Threading Motor

Gear Box Position Adjustment (5-3-2)

Replacement of Reel Motor

FWD Torque Adjustment (6-3) → REV Torque Adjustment (6-4)

Replacement of CTL PB Head

CTL PB Head Height/AZimuth/Zenith Adjustments (7-8-3) → Video Tracking Adjustment (check) (7-8-1)

Replacement of Audio/CTL Head

Audio Head Height Adjustment (7-8-4) → Audio Head Azimuth Adjustment (7-8-6) → Video Tracking Adjustment (7-8-1) → Audio Head Height Adjustment (7-8-4) → Audio Head Azimuth Adjustment (7-8-6) → Audio Head Phase Adjustment (7-8-7) → Audio/CTL Head Position Adjustment (7-8-8) → Time Code Head Position Adjustment (7-8-10) → Audio System Alignment (all of Section 10)

Replacement of Drum Assembly

Tracking Adjustment (7-8) → F FWD/REW Modes Tape Path Adjustment (7-1) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Video Head Dihedral Adjustment (7-9) → Drum AFC Level Adjustment → Drum AFC Transient Adjustment → Switching Position Adjustment

Replacement of Upper Drum Assembly

Replacement of Upper Drum (4-1) → Tracking Adjustment (7-8) → F FWD/REW Modes Tape Path Adjustment (7-1) → PLAY Mode Tape Path Adjustment (2) (7-5) → REV Mode Tape Path Adjustment (7-6) → Video Head Dihedral Adjustment (7-9) → PB RF Amplifier Adjustment

SECTION 5
LINK AND DRIVE SYSTEM ALIGNMENT

5-1. REEL TABLE SYSTEM ADJUSTMENT

5-1-1. Cassette Holder Position Adjustment

Tool: Reel table height check base jig
Thickness gauge
L-shaped hexagonal wrench
(across flat has 1.27 mm)

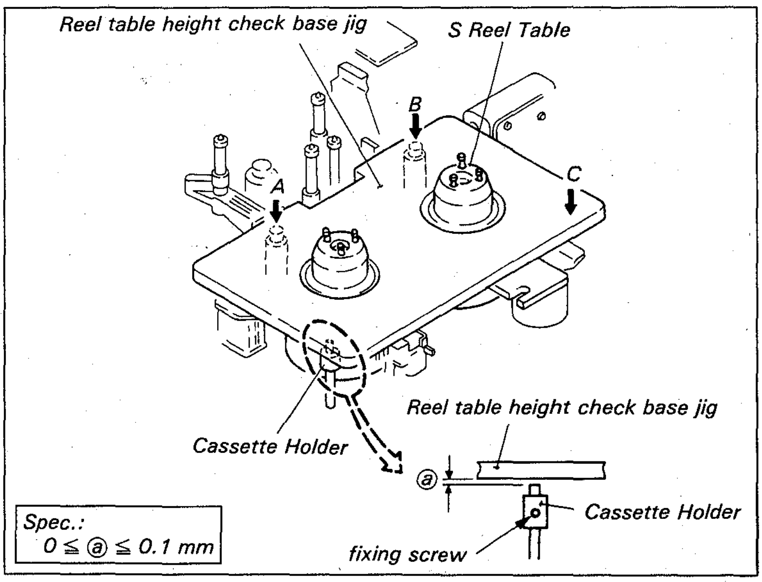
Mode: EJECT completion

Check procedure:

(1) While lightly pushing the Reel Table Height Check Base Jig marked (A), (B) and (C) toward the chassis, check that the clearance between the base jig and the cassette holder meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Cassette Holder to meets the required specification.


Reel table height check base jig
S Reel Table
B
A
C
Reel table height check base jig
Cassette Holder
ⓐ
Cassette Holder
fixing screw

Spec.:
$0 \leq$ ⓐ ≤ 0.1 mm

5-1-2. Reel Table Height and Vertical Play Adjustment

. The height of the reel table is the reference for the tape threading system and the tape path system. This Adjustment should be performed very carefully.

Tool: Reel table height check base jig
Reel table height check jig
Slide vernier callipers or equivalent

Mode: EJECT completion

Check procedure:

(1) The probes of the Reel Table Height Check Jig marked "SO" and "TO" can slide over the reel table, leaving a clerarnce between the jig and the reel table. The probes marked "SX" and "TX" meet the flange and cannot slide over the reel table.
  . Use the "SO" and "SX" probes for the Supply Reel Table.
  . Use the "TO" and "TX" probes for the Take-up Reel Table.

(2) After tighten the fixing screw of the top of the reel table, push up and press down the reel table. Check that the vertical play meets the required specification.

Adjustment procedure:

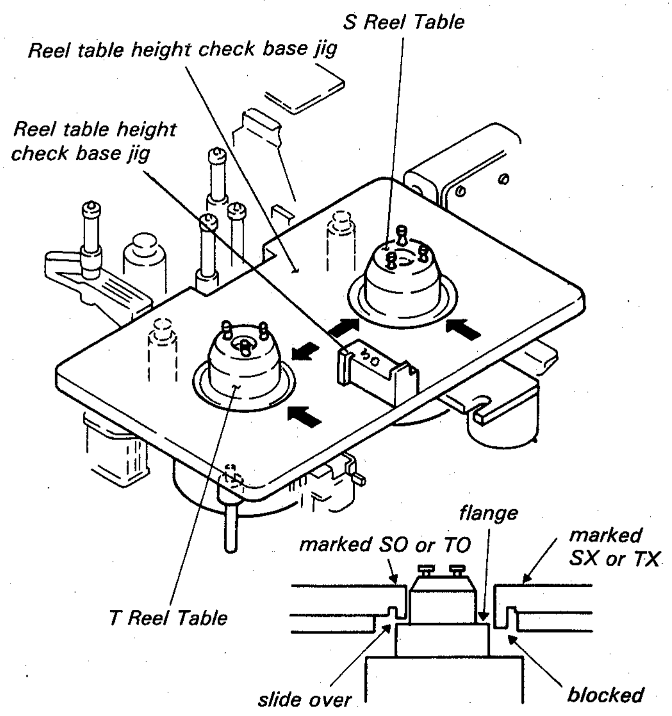
(1) Place the washer under the reel table and adjust the height of the reel table.

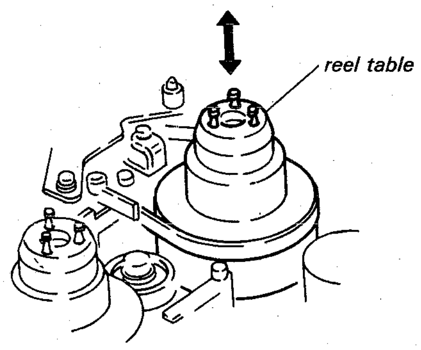
(2) Place the washer on the reel table and adjust the vertical play of the reel table.

NOTE : When the reel table is removed and its height is adjusted with a washer, drop a drop of Sony oil on the reel shaft. (A drop of Sony oil is the amount that is scooped by a 2 mm dia. twing as shown in the figure.)

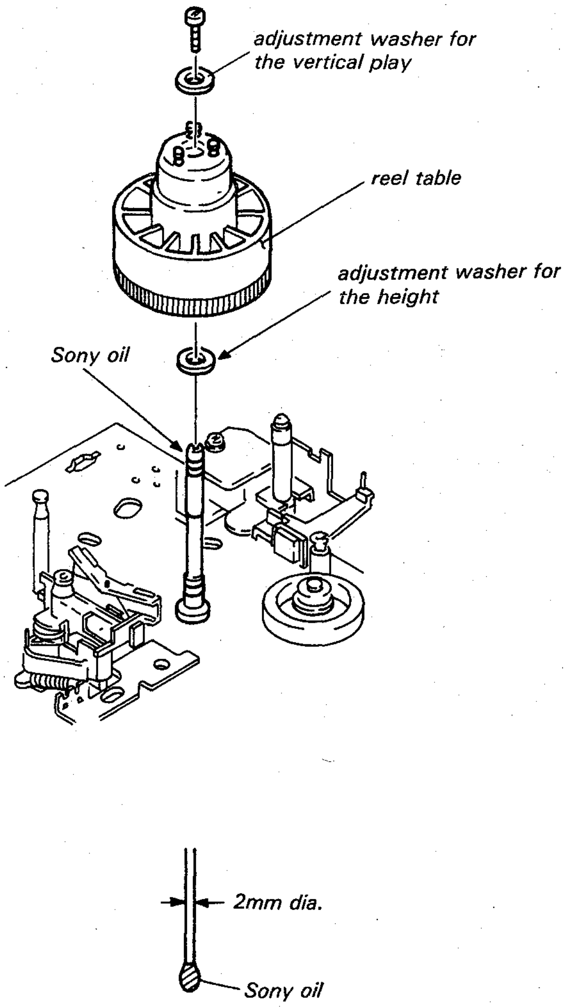
. Adjustment poly-slider washer:

3-645-567-11	6 mm dia.	0.05 mm thick
3-701-444-01	6 mm dia.	0.13 mm thick
3-701-444-11	6 mm dia.	0.25 mm thick
3-701-444-21	6 mm dia.	0.5 mm thick


S Reel Table
Reel table height check base jig
Reel table height check base jig
flange
marked SO or TO
marked SX or TX
T Reel Table
slide over
blocked



Spec.: vertical play
0.17 mm ∿ 0.38 mm


adjustment washer for the vertical play
reel table
adjustment washer for the height
Sony oil
2mm dia.
Sony oil

5-2. T DRAWER ARM ADJUSTMENT

5-2-1. T Drawer Arm EJECT Position Adjustment

Mode: Put the unit into the FR-STOP mode without a cassette tape. And then put the unit inot the EJECT completion mode.

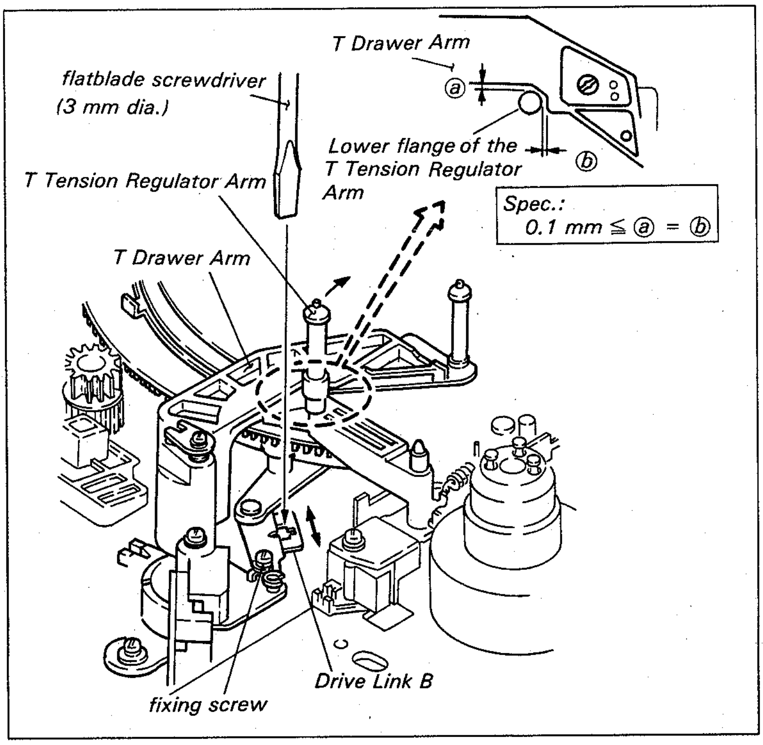
Check procedure:

(1) Push the T Tension Regulator Arm in the direction of the arrow as far as it will go, and remove the finger gently.

(2) Check that the clearance between the lower flange of the T Tension Regulator Arm and the T Drawer Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Drive Link (B) Ass'y with a flatblade screwdriver (3mm dia.) to meets the required specification.


T Drawer Arm
flatblade screwdriver
(3 mm dia.)
ⓐ
Lower flange of the
T Tension Regulator
Arm
ⓑ
T Tension Regulator Arm
Spec.:
0.1 mm ≦ ⓐ = ⓑ
T Drawer Arm
fixing screw
Drive Link B

5-2-2. Unthread-end Switch Position Adjustment

Tool: Black vinyl tape
(1 cm x 1.5 cm)

Preparation:

(1) Put the unit into the FR-STOP mode and turn the power OFF.

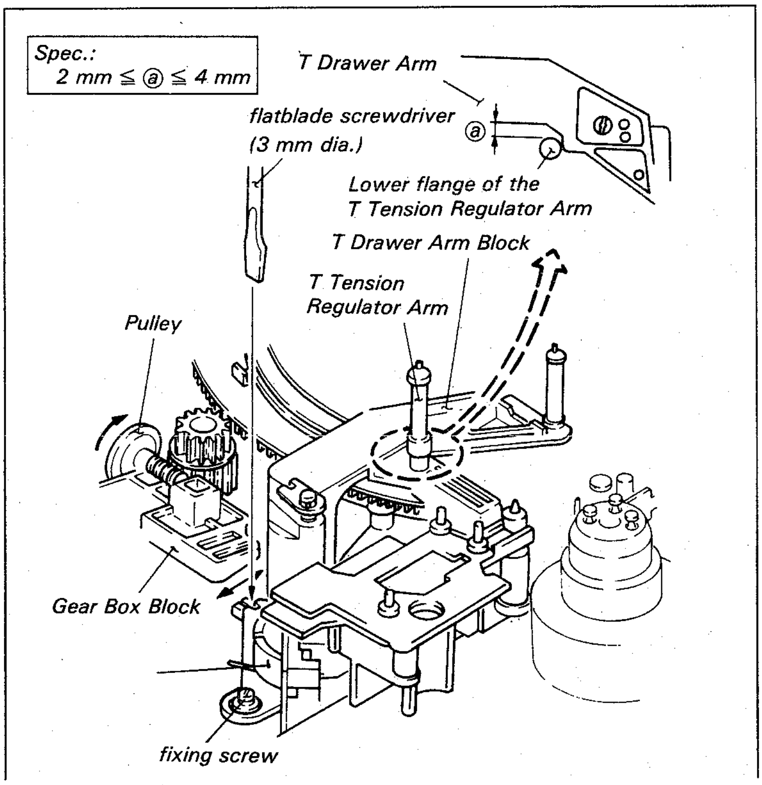
(2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.

(3) Remove the FR Detector Block and cover the D2 photointerrupter (FR-UNTHREAD END Detector) with the black vinyl tape. (The FR Detector is put into the FR-STOP mode.)

Check procedure:

(1) Turn the power ON and rotate the pulley of Gear Box Block in the clockwise direction by hand.

(2) When the T Brake Solenoid is energized (click sound heard), check that the positional relationship of the T Drawer Arm and the T Tension Regulator Arm meet the specification as shown in the figure.


Spec.:
2 mm ≦ ⓐ ≦ 4 mm
T Drawer Arm
flatblade screwdriver
(3 mm dia.)
ⓐ
Lower flange of the
T Tension Regulator Arm
T Drawer Arm Block
T Tension
Regulator Arm
Pulley
Gear Box Block
fixing screw

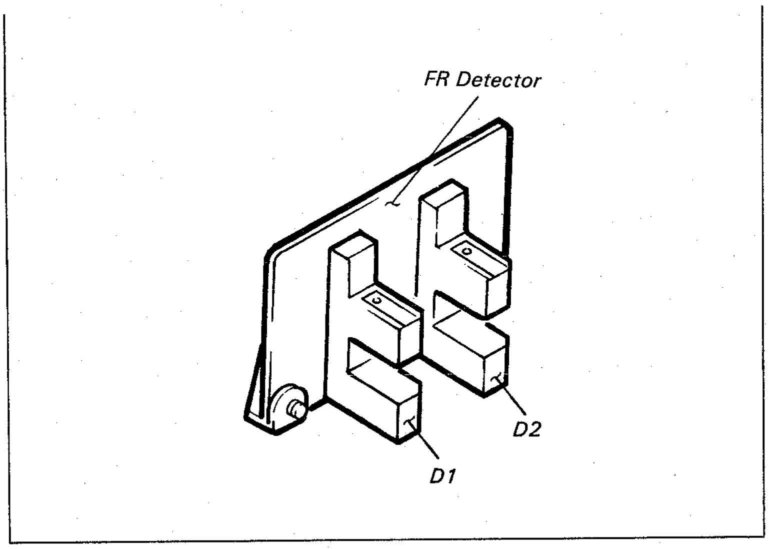
Adjustment procedure:

(1) Adjust the position of the Photointerrupter Holder with a flatblade screwdriver (3mm dia.) to meet the required specification.

(2) Turn the power OFF and install FR Detector Block after peeling off the black vinyl tape.

(3) Perform Section 5-3-4, FR Detector Installing Position Adjustment.

(4) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.



5-3. THREADING SYSTEM ADJUSTMENT

5-3-1. Threading Ring Rotation Adjustment

- This adjustment is required only when the Threading Ring is replaced or removed.
- If the Threading Ring is adjusted to have a narrower clearance, the ring rotation becomes sluggish. If adjusted to have a wider clearance, tape run during threading, FWD, and REV modes will be unstable.

Mode: Check mode: EJECT completion/
Threading/Unthreading
Adjustment mode: EJECT completion

Check procedure:

(1) Put the unit into the EJECT completion mode. Check that the horizontal play meets the required specification when the Thteading Ring is pushed in the direction of the arrow.

(2) Check that the rotation of the Threading Ring during the Threading and Unthreading modes is smooth.

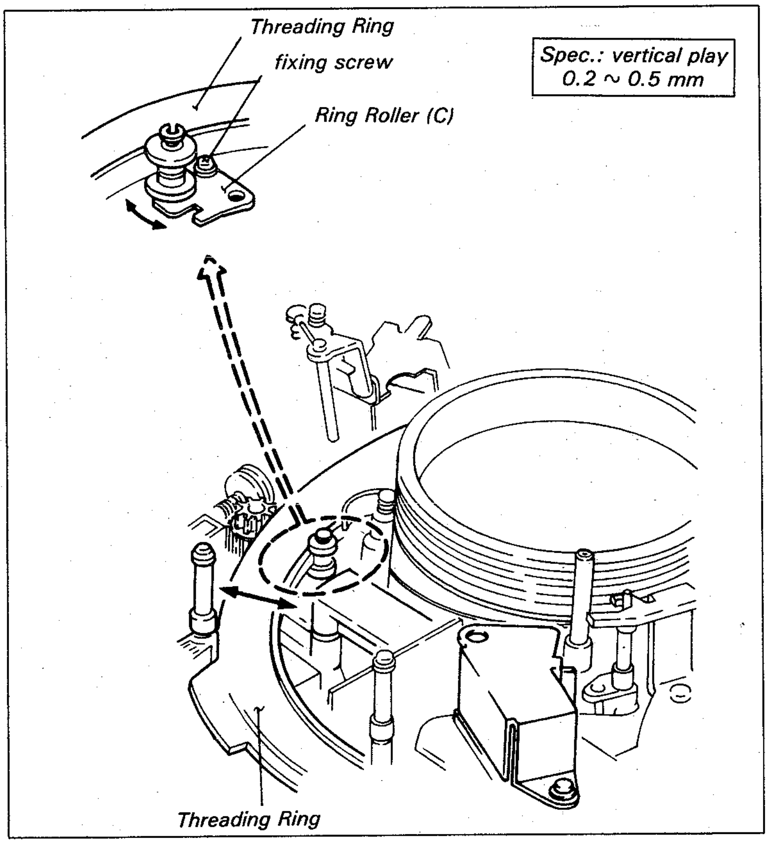
Adjustment procedure:

(1) Put the unit into the EJECT completion mode.

(2) Adjust the position of the Ring Roller (C) to meet the required specification.

Reference:

- Insert a 0.3 mm thick piece of paper between the Threading Ring and the Ring Roller (C).
- Three pages of this service manual are 0.3 mm thick.



5-3-2. Gear Box Installing Position Adjustment

- It is required that Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Put the unit into the EJECT completion mode. Turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

Check procedure:

(1) Put the unit into the EJECT completion mode and then turn the pulley of the Gear Box 1/2 to 1 turn in the direction of arrow C.

(2) Mark two lines on the top surface of the gear with a black felt tip pen. (Two lines are easy to see during the adjustment.)

(3) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

(4) Check that the relationship between the outer circumference of the Threading Ring and the Gear meets the required specification.

Adjustment procedure:

(1) Open the DM-69 Board.

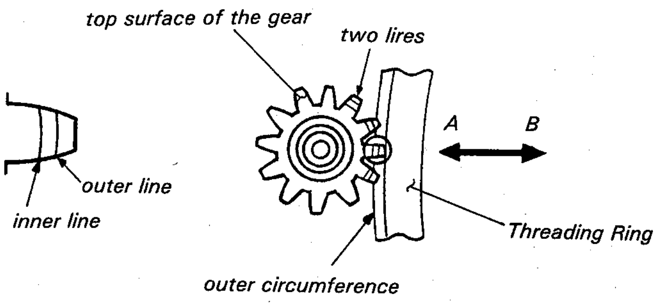
(2) Turn the pulley in the direction of arrow C or D until one of the lines is roughly parallel to the outer circumference of the Threading Ring.

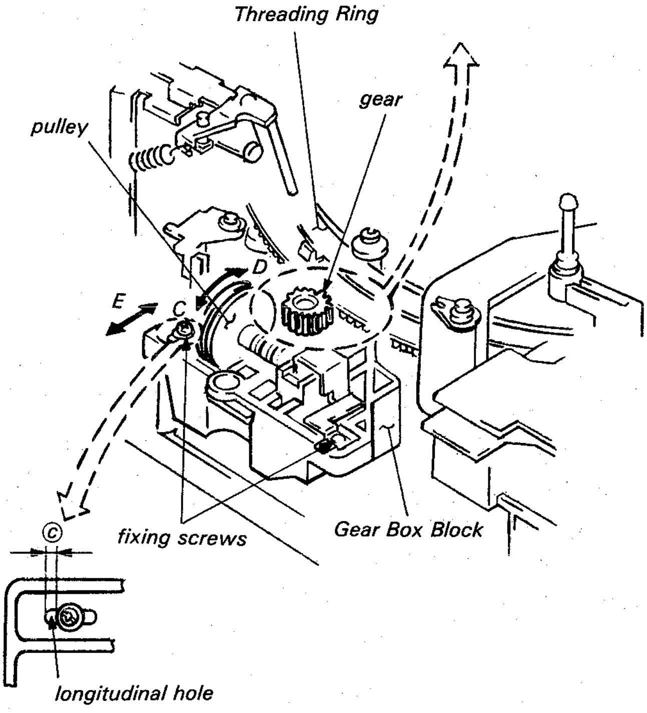
(3) Move the Gear Box in the direction of arrow E to meet the required specification.

(4) Check that Section 5-3-1, Threading Ring Rotation Adjustment meets the required specification.

(5) Check that ⓒ meets the required specification at the longitudinal hole of the gear block as shown in the figure.

Spec.:
(1) When pushing the Threading Ring in the direction of arrow A or B, the outer circumference of the Threading Ring is between two lines of the gear.


top surface of the gear
two lires
A
B
outer line
inner line
Threading Ring
outer circumference


Threading Ring
gear
pulley
D
E
C
ⓒ
fixing screws
Gear Box Block
longitudinal hole

Spec.:
0.1 mm ≦ ⓒ ≦ 1.5 mm

5-3-3. Pinch Roller Self Alignment Adjustment

. If this adjustment is incorrect, the position and the slantness of the Pinch Roller will not be correct when the Pinch Roller is pressed against the Capstan Shaft. Incorrect adjustment will cause a tape to be damaged.

Mode: PLAY mode without a cassette tape

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape.

(2) Check that the relationship of Pinch Roller Arm (A) and Pinch Roller Arm (B) meets the required specification.

Adjustment procedure:

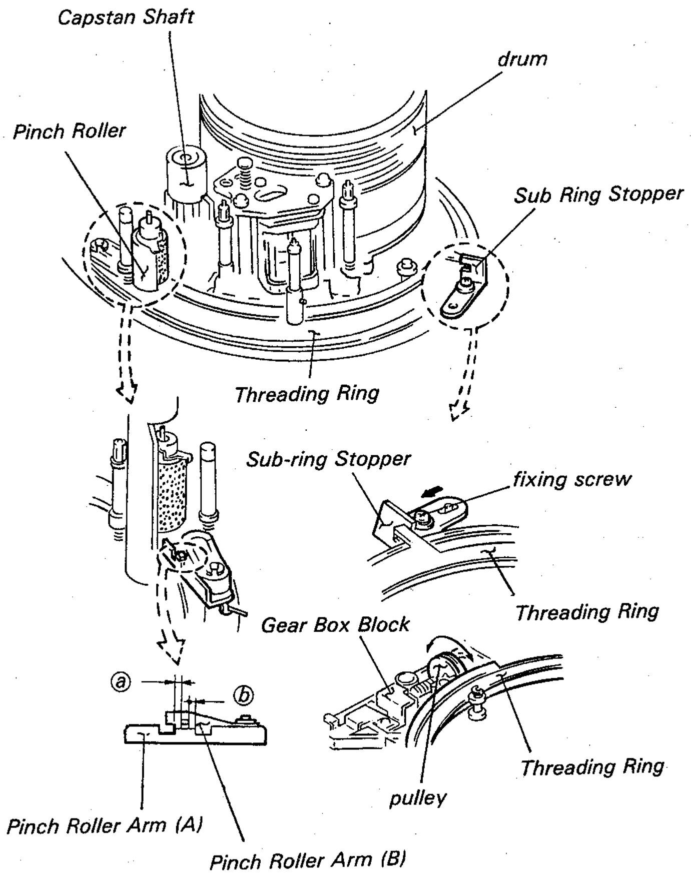
(1) Put the unit into the PLAY mode without a cassette tape.

(2) Loosen the fixing screw in the Sub-ring Stopper.

(3) Turn the pulley of the Gear Box Block in the direction of the arrow to meet the required specification.

(4) Push the Sub-ring Stopper gently in the direction of the arrow and tighten the fixing screw.

(5) Put the unit into the EJECT completion mode and then perfomn the check procedure.


Capstan Shaft
drum
Pinch Roller
Sub Ring Stopper
Threading Ring
Sub-ring Stopper
fixing screw
Threading Ring
Gear Box Block
ⓐ
ⓑ
Threading Ring
pulley
Pinch Roller Arm (A)
Pinch Roller Arm (B)

Spec.:
There are clearances ⓐ and ⓑ.

5-3-4. FR Detector Block Installing Position Adjustment

. It is required that the Section 5-3-1, Threading Ring Rotation Adjustment is correct before initiating this adjustment.

Mode: Threading completion mode

Adjustment procedure:

(1) Put the unit into the Threading completion mode and turn the power OFF.

(2) Remove the Pinch Press Lever Spring from the bracket of the FR Detector Block with tweezers.

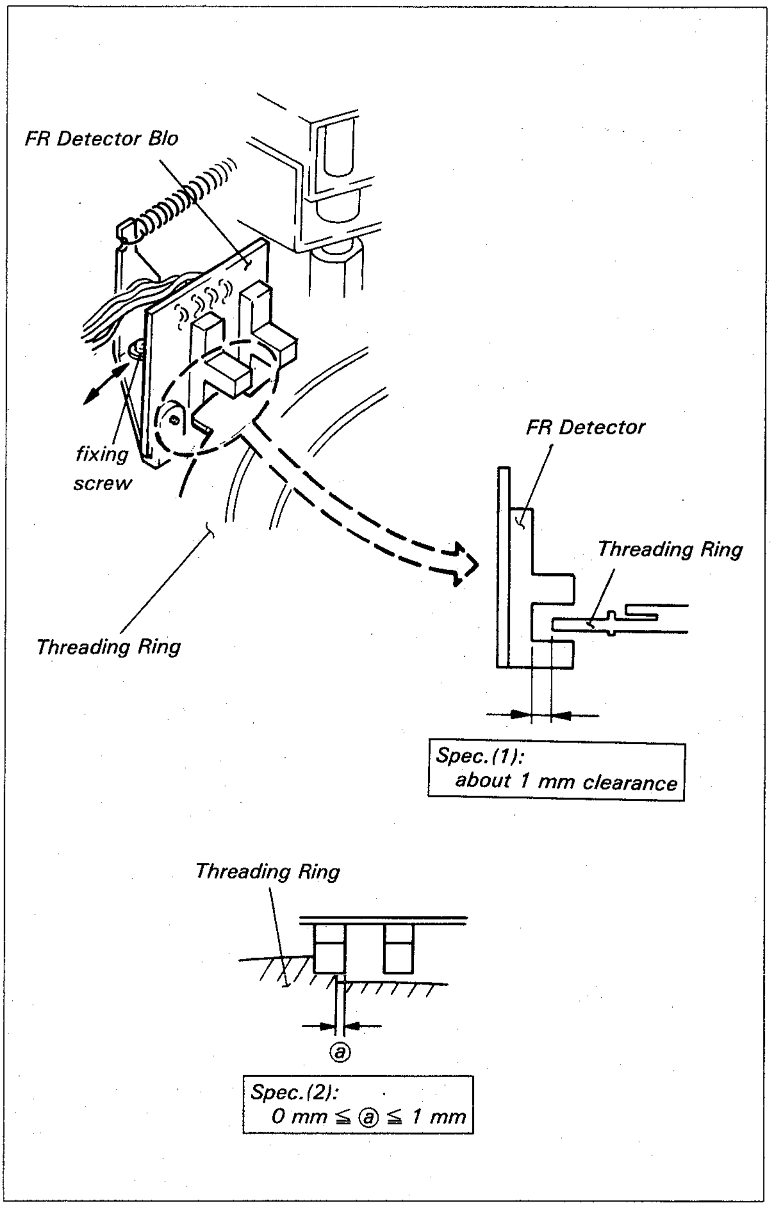
(3) Loosen the fixing screw of the FR Detector block 1/4 to 1/2 turn.

(4) Press the FR Detector Block against the Threading Ring, and reverse it about 1mm. (Do not reverse it more than 1.5mm) (Spec.1)

(5) Move the FR Detector Block in the direction of the arrow to meet the required specification 2.

(6) Check that the clearance meets the required specification 1.

(7) Hook the Pinch Press Lever Spring to the bracket of the FR Detector Block with tweezers.


FR Detector Blo
fixing screw
Threading Ring
FR Detector
Threading Ring
Spec.(1): about 1 mm clearance
Threading Ring
ⓐ
Spec.(2): 0 mm ≦ ⓐ ≦ 1 mm

5-4. PINCH LEVER BLOCK ADJUSTMENT

5-4-1. Pinch Lever Preset Adjustment

. It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Mode: Turn the power OFF in the PLAY mode

Check procedure:

(1) Open the RP-40 Board.

(2) Put the unit into the PLAY mode and turn the power OFF. Check that the position of the Pinch Solenoid Pin meets the required specification.

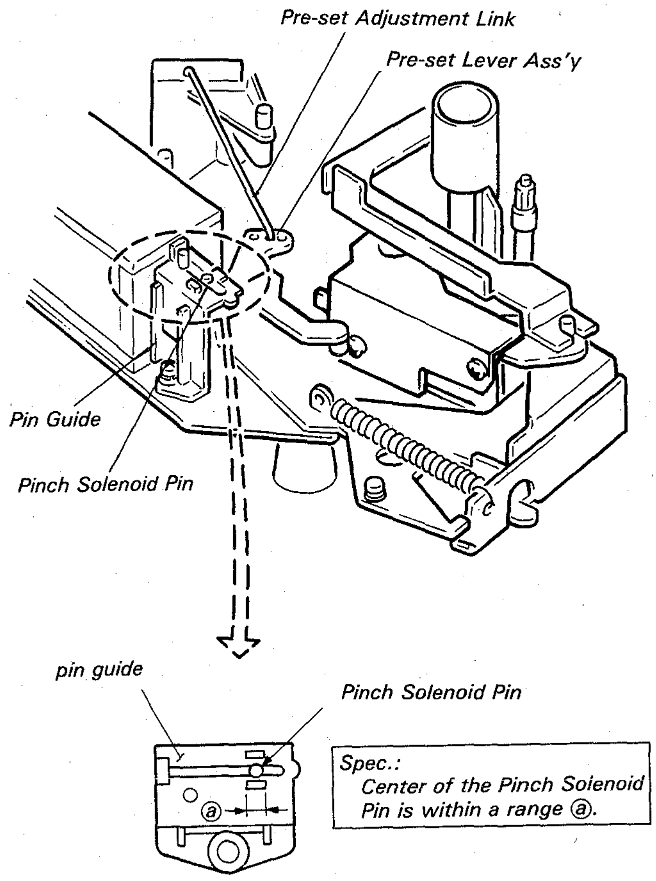
(3) Turn the power ON and press the PLAY button. After unthreading is complete, check as described in step (1).

Adjustment procedure:

(1) Adjust the position of the Pinch Solenoid to meet the required specification, refering to Section 5-7-4, Pinch Solenoid Installing Position Adjustment.

(2) If the specification in Step (1) cannot be obtained, adjust the position of the Sub-ring Stopper to meet the required specification, refering to Section 5-3-3, Pinch Roller Self Alignment Adjustment.

(3) If the specification in Steps (1) and (2) cannot be obtained, insert the Pinch Lever Preset Adjustment Link into the appropriate hole of the Preset Lever Ass'y to meet the required specification. Perform Steps (1) and (2) again.



Spec.:
Center of the Pinch Solenoid Pin is within a range ⓐ.

5-4-2. Pinch Roller Preset Adjustment

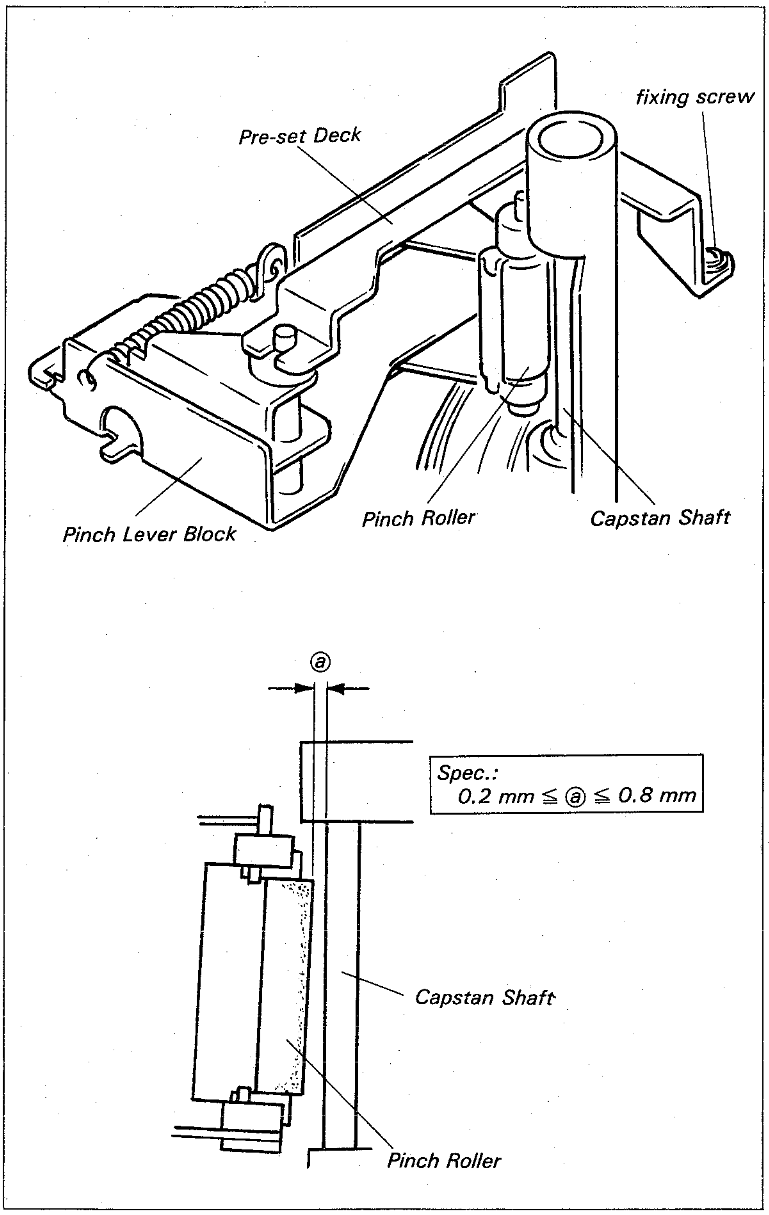
It is required that Section 5-3-1, Threading Ring Rotation Adjustment and Section 5-3-3, Pinch Roller Self Alignment Adjustment are correct before initiating this adjustment.

Tool: Thickness gauge
Mode: PLAY mode
Check procedure:

(1) Check that the clearance between the Pinch Roller and Capstan Shaft meets the required specification.

Adjustment procedure:

(1) Adjust the position of the Pre-set Deck to meet the required specification.
(2) Repeat the Threadihg/Unthreading modes two or three times and check that it meet the required specification.


fixing screw
Pre-set Deck
Pinch Lever Block
Pinch Roller
Capstan Shaft
ⓐ
Spec.:
0.2 mm ≦ ⓐ ≦ 0.8 mm
Capstan Shaft
Pinch Roller

5-4-3. Pinch Solenoid Block Position Adjustment

Tool: Thickness gauge

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

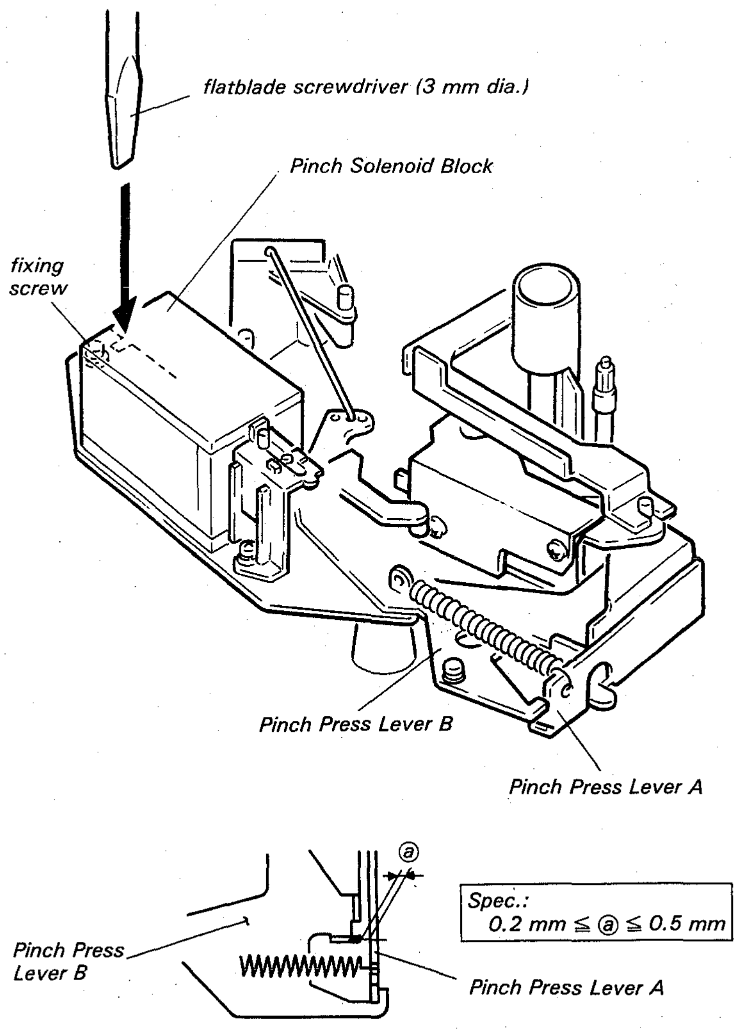
(2) Check that the clearance between Pinch Press Lever A and B meets the required specification.

(3) Repeat the Unthreading/Threading modes two or three times and check as described in step (2).

Adjustment procedure:

(1) Put the unit into the PLAY mode. Adjust the position of the Pinch Solenoid Block with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(2) Perfom the check procedures (2) and (3).


flatblade screwdriver (3 mm dia.)
Pinch Solenoid Block
fixing screw
Pinch Press Lever B
Pinch Press Lever A
ⓐ
Pinch Press Lever B
Pinch Press Lever A

Spec.:
0.2 mm ≦ ⓐ ≦ 0.5 mm

5-5. T TAPE SENSOR POSITION ADJUSTMENT

- There are two adjustments in this section. The first is the height adjustment and the second is the adjustment of the clearance between the tape and LED.

Tool: Thickness gauge

Mode: PLAY and FR STOP modes with a cassette tape

Check procedure:

(1) Inset the cassette tape and put the unit into the FR STOP mode. Push the tape by hand as shown in the figure. Check that the clearance between top edge of the tape and bottom side of the T Photo Holder Block (black plastic) meets the required specification. (Spec. (1))

(2) Put the unit into the PLAY mode.

(3) As viewed from the top of the unit, check that the ※※ of the T Tape Sensor Block is above the upper flange of the T Drawer Arm (within the range "A"). (Spec. (2))

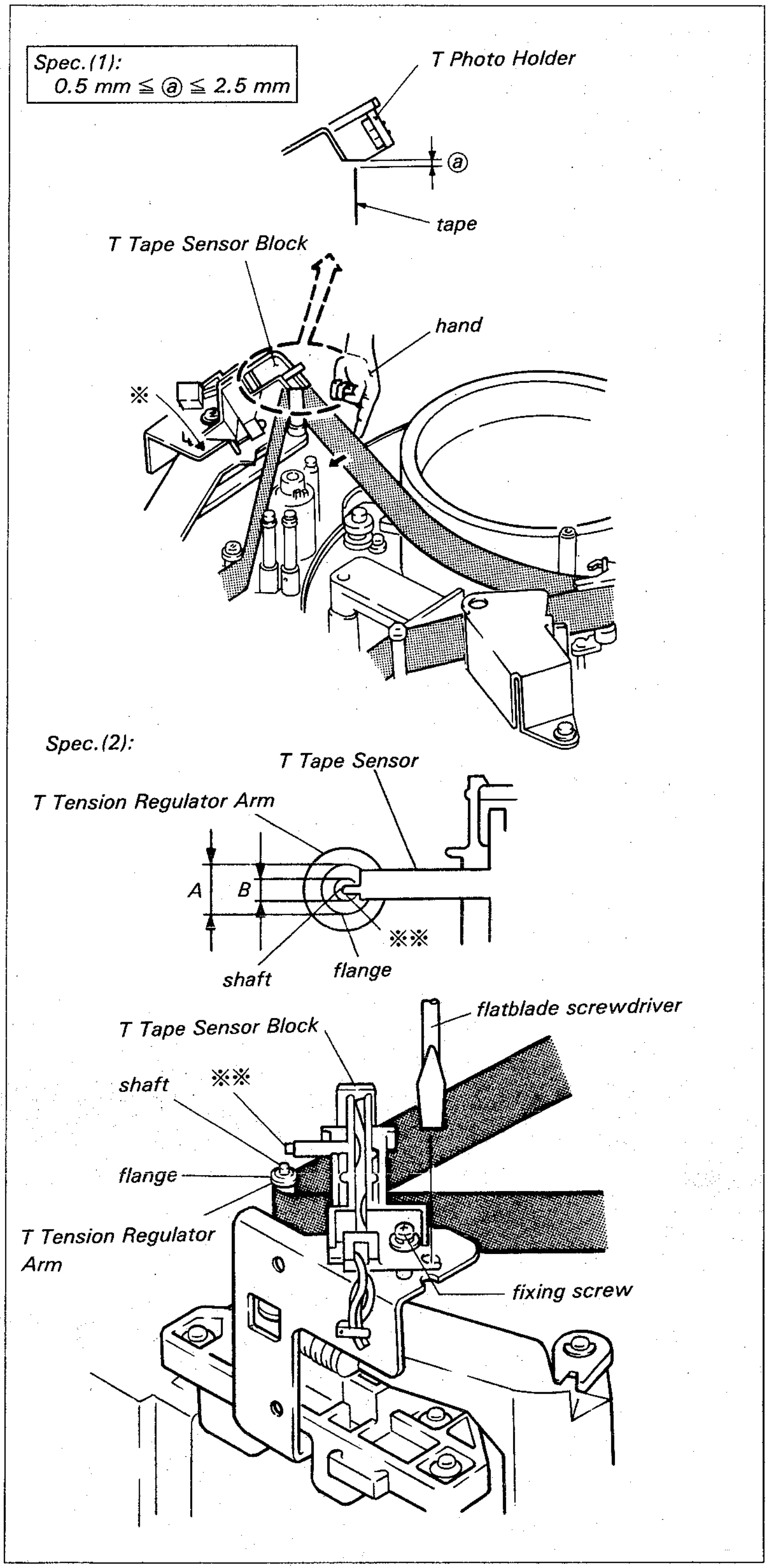
Adjustment procedure:

(1) Bend the ※ with a pliers to meet the required specification (1). Perfom check procedures (2) and (3).

(2) Loosen the fixing screw of the T Tape Sensor Block 1/2 to 1 turn.

(3) As viewed from the top of the unit in the PLAY mode, adjust the position of the T Tape Sensor Block with a flatblade screwdriver so that the ※ ※ of the T Tape Sensor Block is above the shaft of the T Drawer Arm (within the range "B").

(4) Check that it meets the required specification (1).


Spec.(1):
0.5 mm ≦ ⓐ ≦ 2.5 mm
T Photo Holder
ⓐ
tape
T Tape Sensor Block
hand
※
Spec.(2):
T Tape Sensor
T Tension Regulator Arm
A
B
※※
shaft
flange
flatblade screwdriver
T Tape Sensor Block
shaft
※※
flange
T Tension Regulator Arm
fixing screw

5-6. TENSION ARM SYSTEM ADJUSTMENT

5-6-1. S Drawer Roller Block Limiter Adjustment

Mode: FR-STOP mode

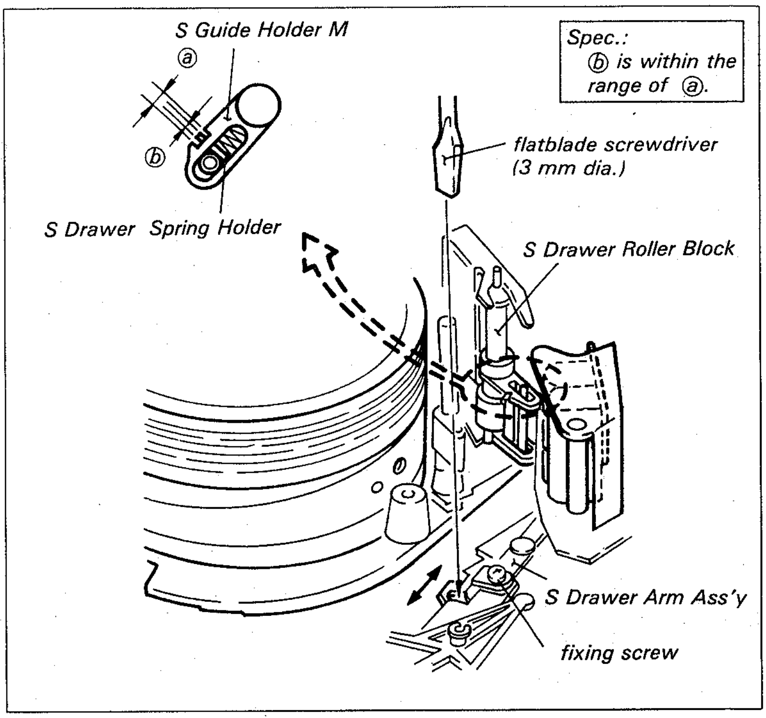
Check procedure:

(1) Check that " b " of the S Drawer Spring Holder in the S Drawer Roller Block fits into notch " a " of the S Guide Holder M.

Adjustment procedure:

(1) Loosen the fixing screw of the S Drawer Arm Ass'y 1/4 to 1/2 turn.

(2) Adjust the position of the S Drawer Arm Ass'y with a flatblade screwdriver (3 mm dia.) to meet the required specification.


S Guide Holder M
ⓐ
ⓑ
S Drawer Spring Holder
Spec.:
ⓑ is within the range of ⓐ.
flatblade screwdriver (3 mm dia.)
S Drawer Roller Block
S Drawer Arm Ass'y
fixing screw

5-6-2. T Tension Regulator Operatiing Position Adjustment

Mode: FR-STOP mode

Tool: Thickness gauge

Check procedure:

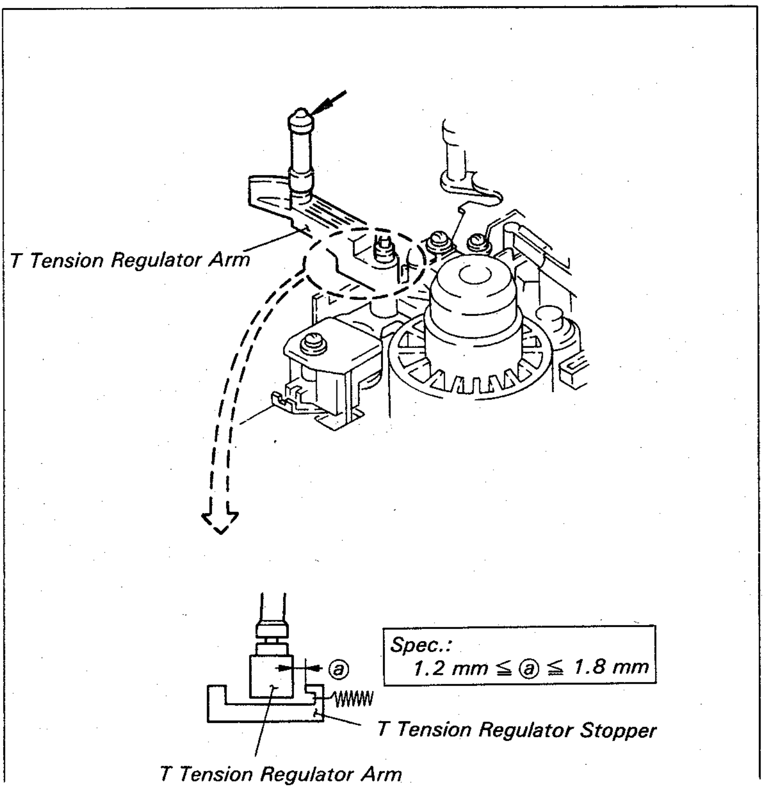
(1) Push the T Tension Regulator Arm in the direction of the arrow and remove the finger gently.

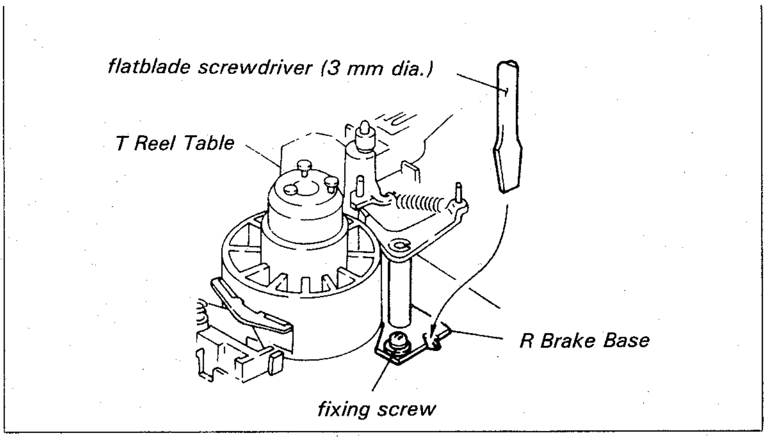
(2) Check that the clearance between the T Tension Regulator Arm and the stopper meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the R Brake Base 1/4 to 1/2 turn.

(2) Adjust the position of the R Brake Base with a flatblade screwdriver (3mm dia.) to meet the required specification.


T Tension Regulator Arm
Spec.:
1.2 mm ≦ ⓐ ≦ 1.8 mm
ⓐ
T Tension Regulator Stopper
T Tension Regulator Arm


flatblade screwdriver (3 mm dia.)
T Reel Table
R Brake Base
fixing screw

5-6-3. S Tension Regulator Operating Position Adjustment

Mode: F-FWD mode

Check procedure:

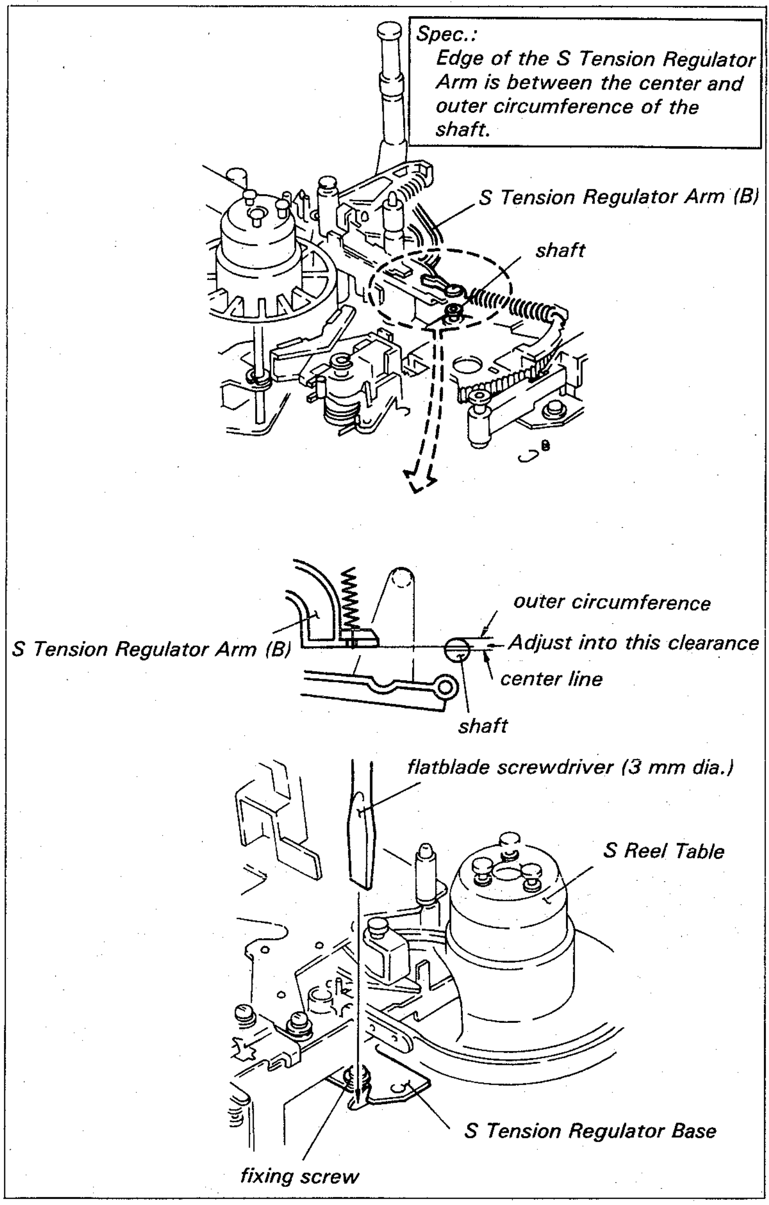
(1) Put the unit into the FF mode without a cassette tape.

(2) Check that the edge of the S Tension Regulator Arm (B) meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the S Tension Regurator Base 1/4 to 1/2 turn.

(2) Adjust the position of the S Tension Regulator Base to meet the required specification.


Spec.:
Edge of the S Tension Regulator Arm is between the center and outer circumference of the shaft.

S Tension Regulator Arm (B)
shaft
S Tension Regulator Arm (B)
outer circumference
Adjust into this clearance
center line
shaft
flatblade screwdriver (3 mm dia.)
S Reel Table
S Tension Regulator Base
fixing screw

5-6-4. Tension Detector Position Adjustment

Tool: DC voltmeter

Mode: FWD / REV mode

Preparation:

(1) Connect the dc voltmeter to TP1 on the SY-141 Board.

Check procedure:

(1) Put the unit into the FWD mode without a cassette tape.

(2) Push the T Tension Regulator Arm to the right with a hand as far as it will go. Check that the dc voltage is more than 8V.

(3) Push the T Tension Regulator Arm to the left with a hand as far as it will go. Check that the dc voltage is less than 2.5V.

(4) Put the unit inti the REV mode.

(5) Push the S Tension Regulator to the right with a hand as far as it will go. Check that the dc voltage is less than 2.5 V.

(6) Push the S Tension Regulator to the left with a hand as for as it will go. Check that the dc voltage is more than 8 V.

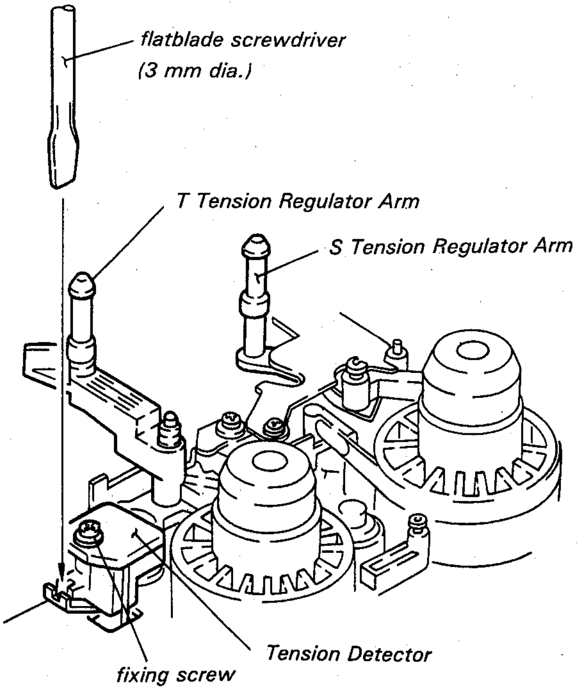
Adjustment procidure:

(1) Remove the FR Detector Block from the unit.

(2) Loosen the fixing screw of the Tension Dtetctor 1/4 to 1/2 turn.

(3) Insert a flatblade screwdriver (3 mm dia) in the notch and adjust the position of the Tension Detector to meet the required specification.

(4) After adjustment, install the FR Detector.



5-6-5. T Tension Regulator Arm Height Adjustment

Tool: L-shaped hexagonal wrench
(across flat has 1.5 mm)

Mode: PLAY / F FWD mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the tape runs in the middle of the tape guide in the cassette.

(3) Check that the tape runs in the middle of the T Tension Detector Guide.

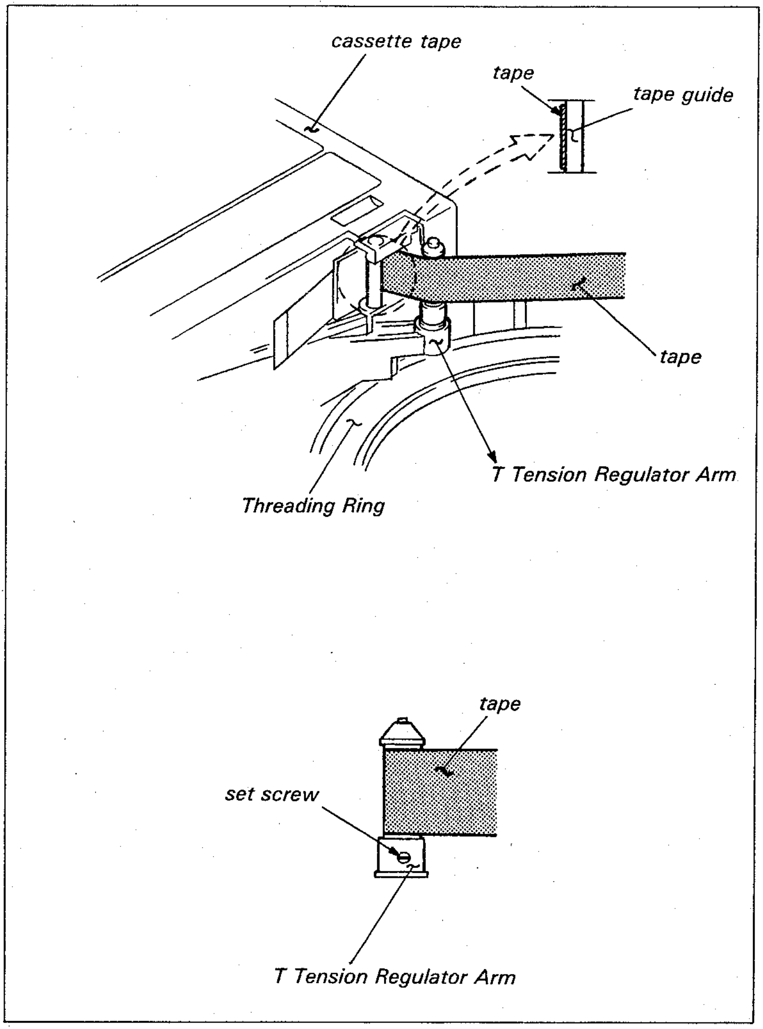
(4) Put the unit into the F FWD mode.

(5) Check as described in steps (2) and (3).

Adjustment procedure:

(1) Loosen the set screw at the lower flange of the T Tension Regulator Arm.

(2) Adjust the height of the T Tension Regulator Arm to meet the required specification.


cassette tape
tape
tape guide
tape
T Tension Regulator Arm
Threading Ring
tape
set screw
T Tension Regulator Arm

5-7. SOLENOID SYSTEM ADJUSTMENT

5-7-1. Search Solenoid Installing Position Adjustment

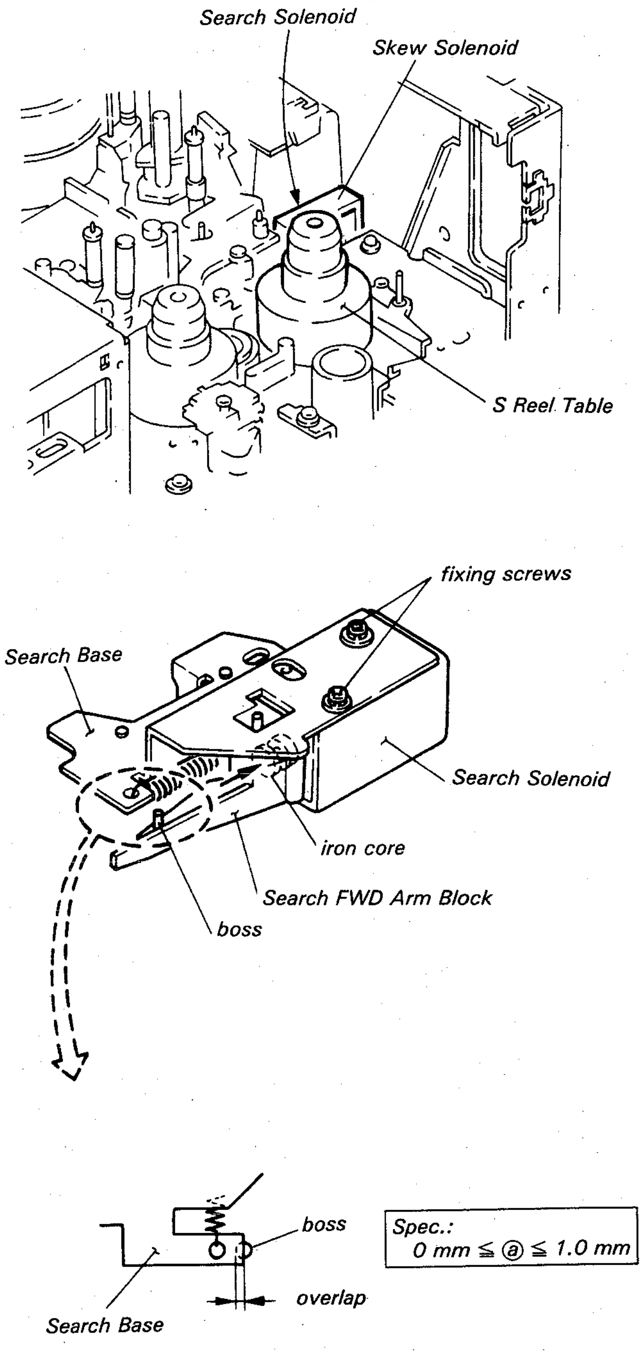
. This adjusment is required only when the search solenoid is replaced or removed.

Preparation:

(1) Remove the Search Solenoid Block from the chassis.

Adjustment procedure:

(1) Move the iron core into the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the Search Solenoid so that the overlap of the Search FWD Arm Boss and the Search Base meets the required specification.


Search Solenoid
Skew Solenoid
S Reel Table
fixing screws
Search Base
Search Solenoid
iron core
Search FWD Arm Block
boss
boss
overlap
Search Base

Spec.:
0 mm ≦ ⓐ ≦ 1.0 mm

5-7-2. T Idler Solenoid Position Adjustment

- This adjustment is performed when T Idler Solenoid is replaced or removed, and the F FWD Torque does not meet the required specification.

Mode: F.FWD mode without a cassette tape

Adjustment procedure:

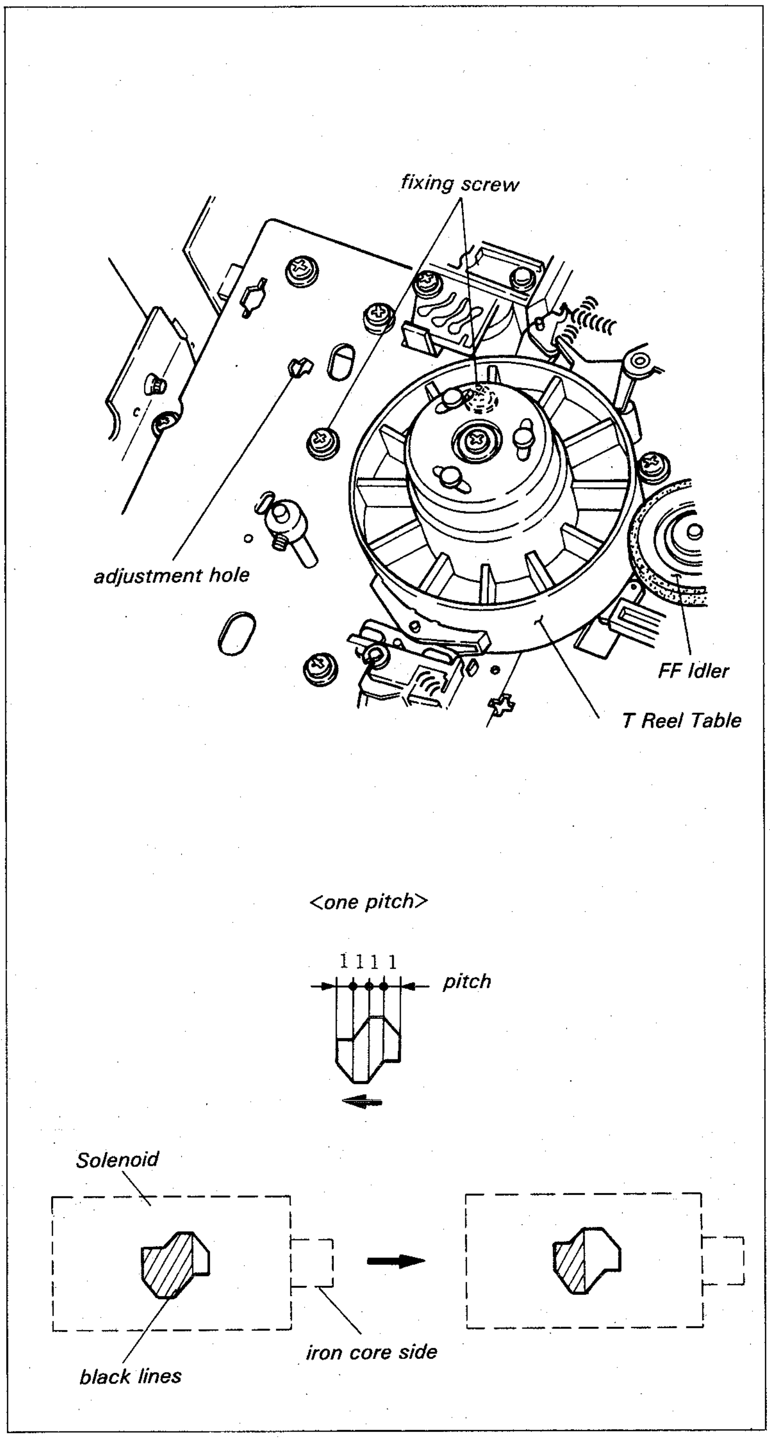
(1) Put the unit into the F FWD mode without a cassette tape.

(2) Loosen the fixing screws of the T Idler Solenoid about 1/2 turn.

(3) Adjust the position of the T Idler Solenoid until the clearance between the T Reel Table and FF Idler become 0.01 to 0.1 mm.

(4) Note the adjustment hole and check that the black line of the solenoid is in this hole.

(5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.


fixing screw
adjustment hole
FF Idler
T Reel Table
<one pitch>
1111
pitch
Solenoid
black lines
iron core side

5-7-3. S Idler Solenoid Position Adjustment

. This adjustment is required only when the S Idler Solenoid is replaced or removed, and the REW Torque does not meet the required specification.

Mode: REW mode without a cassette tape

Adjustment procedure:

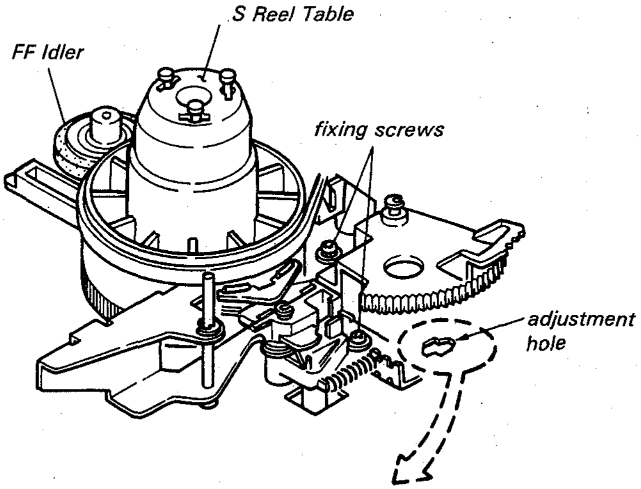
(1) Put the unit into the REW mode without a cassette tape.

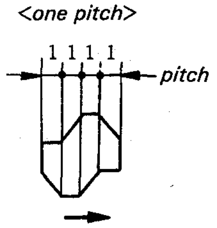
(2) Loosen the fixing screws of the S Idler Solenoid about 1/2 turn.

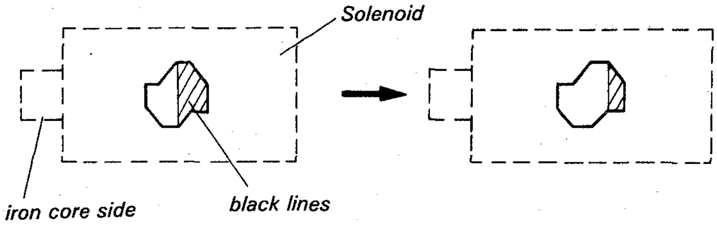
(3) Adjust the position of the S Idler Solenoid until the clerance between the S Reel Table and FF Idler become 0.01 to 0.1 mm.

(4) Note the adjustment hole and check that the black line of the solenoid is in this hole.

(5) Move the Solenoid in the direction of the arrow only one pitch from the position of step (4). Tighten the fixing screws.


S Reel Table
FF Idler
fixing screws
adjustment hole




Solenoid
iron core side
black lines

5-7-4. Pinch Solenoid Installing Position Adjustment

. This adjustment is required only when the Pinch Solenoid is replaced or removed.

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a cassette tape and put the unit into the PLAY mode.

(2) Check that the outer circumference of the Solenoid Pin meets the required specification.

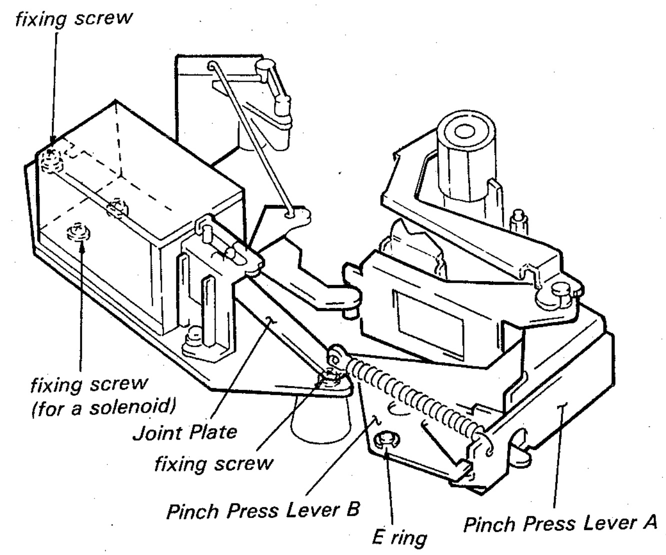
Adjustment procedure:

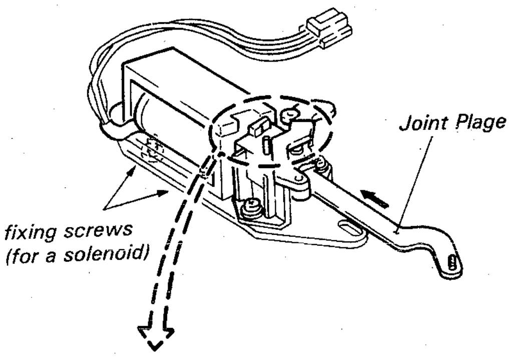
(1) Remove the E ring and the Joint Lever from the Pinch Press Lever B.

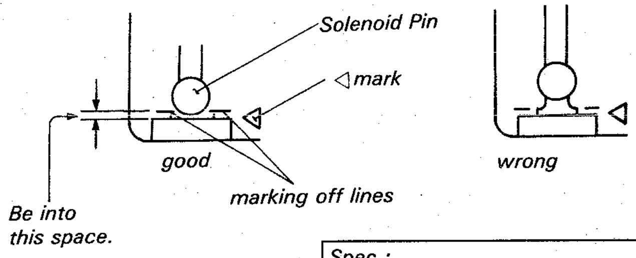
(2) Remove the Pinch Solenoid Block from the chassis after removing the two fixing screws.

(3) Move the Joint Lever to the fully energized position (as far as it will go in the direction of the arrow). Adjust the position of the solenoid so that the outer circumference of the Solenoid Pin to meet the required specification.

(4) Install the Pinch Solenoid Block on the unit. Perform the check procedure.


fixing screw
fixing screw
(for a solenoid)
Joint Plate
fixing screw
Pinch Press Lever B
E ring
Pinch Press Lever A


Joint Plage
fixing screws
(for a solenoid)


Solenoid Pin
◁ mark
good
wrong
marking off lines
Be into
this space.

Spec.:
Outer circumference of Solenoid Pin is between △ mark and marking off lines.

5-7-5. T Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

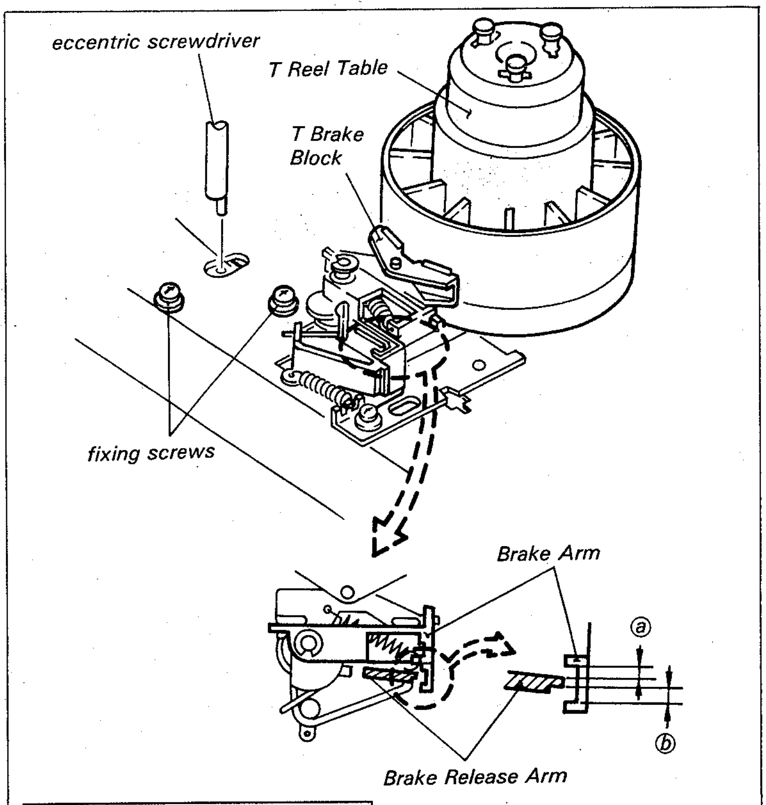
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the T Brake Solenoid with an eccentric screwdriver to meet the required specification.


eccentric screwdriver
T Reel Table
T Brake Block
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm

Spec.:
There are clearances ⓐ and ⓑ.

5-7-6. S Brake Solenoid Position Adjustment

Tool: Eccentric screwdriver (6 mm dia.)

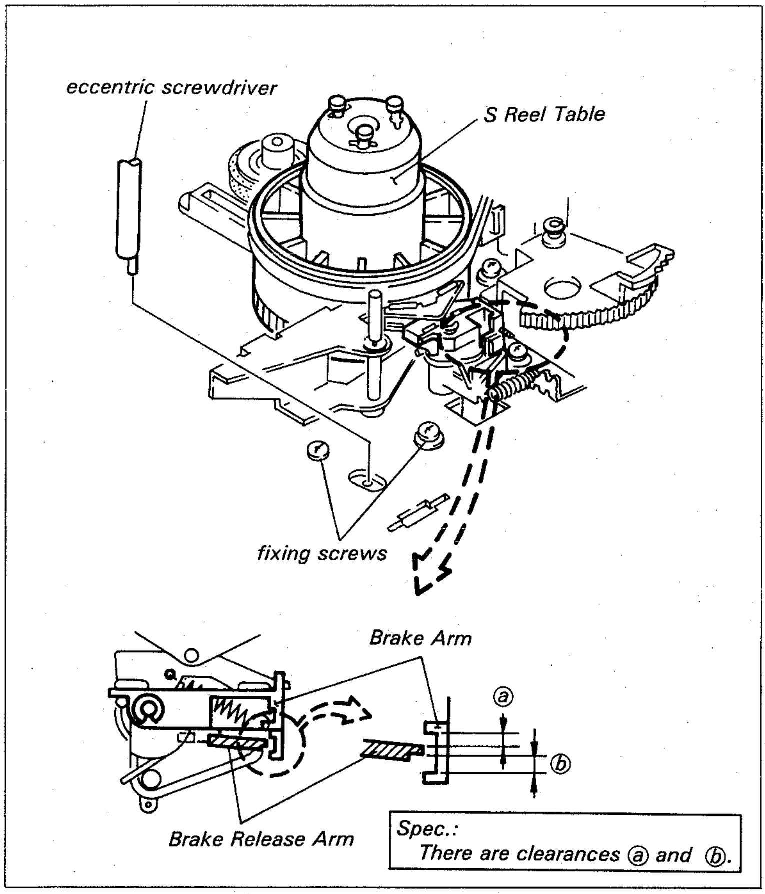
Mode: PLAY mode without a cassette tape

Check procedure:

(1) Check that the relationship between the Brake Release Arm and the Brake Arm meets the required specification.

Adjustment procedure:

(1) Adjust the position of the S Brake Solenoid with an eccentric screwdriver to meet the required specification.


eccentric screwdriver
S Reel Table
fixing screws
Brake Arm
ⓐ
ⓑ
Brake Release Arm
Spec.:
There are clearances ⓐ and ⓑ.

5-7-7. Skew Solenoid Position Adjustment

Mode: EJECT completion mode

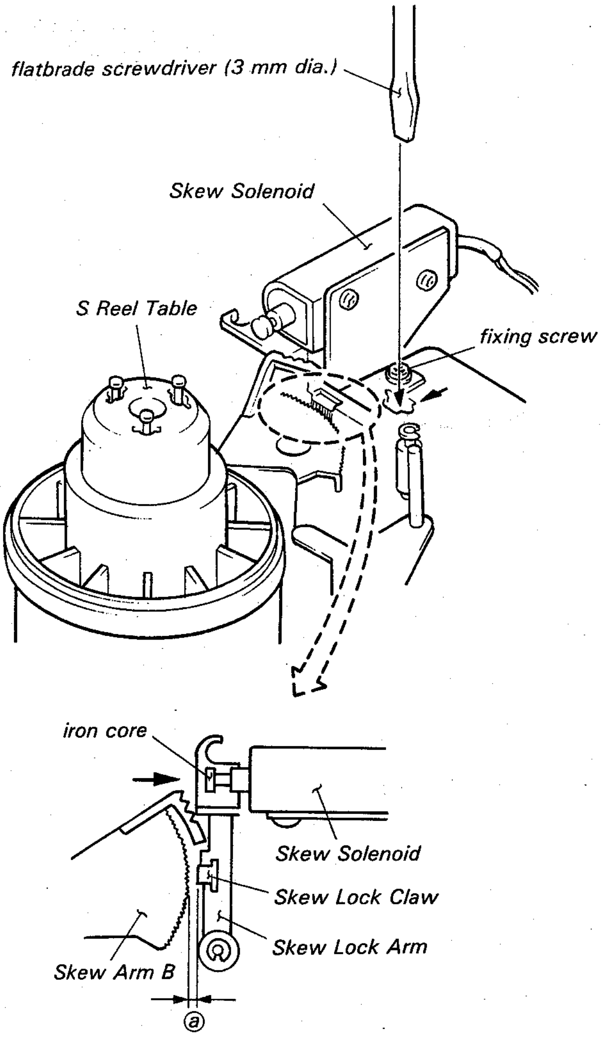
Check procedure:

(1) When pushed the iron core in the direction of the arrow, check that the clearance between the Skew Lock claw and Skew Arm B meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the Skew Solenoid Block 1/4 to 1/2 turn.

(2) Adjust the position of the Skew Solenoid with a flatblade screwdriver (3 mm dia.) to meet the required specification.


flatbrade screwdriver (3 mm dia.)
Skew Solenoid
S Reel Table
fixing screw
iron core
Skew Solenoid
Skew Lock Claw
Skew Lock Arm
Skew Arm B
ⓐ

Spec.:
0.2 mm ≦ ⓐ ≦ 0.5 mm

5-8. CASSETTE-UP COMPARTMENT ADJUSTMENT

. The Cassette-up Compartment has two photo-electric switches. The ON/OFF timing of these switches is adjusted in this procedures.

. Remove the Cassette-up Compartment from the unit for this adjustment.

5-8-1. Cassette-in Switch Position Adjustment

Tool: Circuit tester
Thickness gauge

Preparation:

(1) Connect jumpers from the harness plug for the Cassette-up Compartment to terminals on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN1
pin 5 or 2 (GND)◄	►pin 5 or 2/CN1

(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 1 (H; CASSETTE IN) of CN1 on the CC-36 Board.

(2) Slowly insert a KCA-60 type cassette tape.

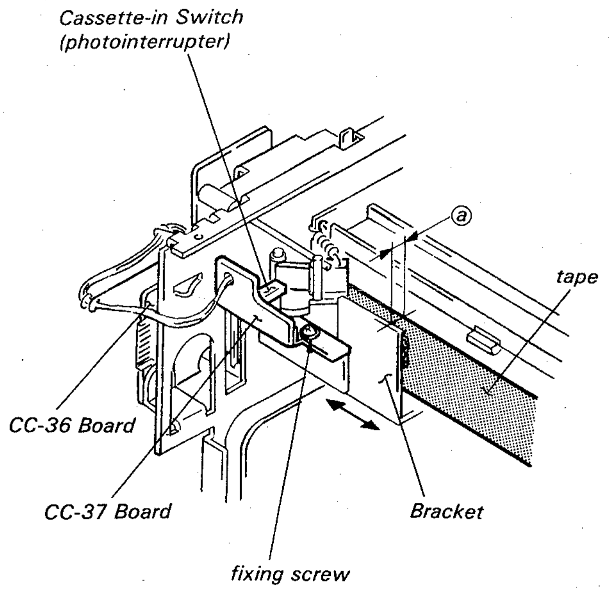
(3) When the circuit tester indicates "H" (about 5V), check that the clearance between the front side of the cassette tape and the bracket of the Cassette- up Compartment meets the required specification.

Adjustment procedure:

(1) Move the CC-37 Board (Cassette-in Switch) in the direction of the arrow to meet the required specification.

. Reference:

Insert a 3.3 mm thickness gauge between the cassette tape and the bracket. Adjust the position of the Cassette-in Switch until the circuit tester indicates to "H".



Spec.:
3 mm ≦ ⓐ ≦ 3.4 mm

5-8-2. Cassette-down Switch Position Adjustment

Tool: Circuit tester

Preparation:

(1) Connect jumpers from the harness plug of the Cassette-up Compartment to terminal on the CC-36 Board as follows:

plug of harness (CN1)	terminal on CC-36 Board
pin 4 (5V)◄	►pin 4/CN1
pin 5 or 2 (GND)◄	►pin 5 of 2/CN1

(2) Turn the power ON.

Check procedure:

(1) Connect the circuit tester to pin 3 (H; CASSETTE DOWN) of CN1 on the CC-36 Board.

(2) Insert a KCA-60 type cassette tape and turn the white gear slowly in the direction of the arrow.

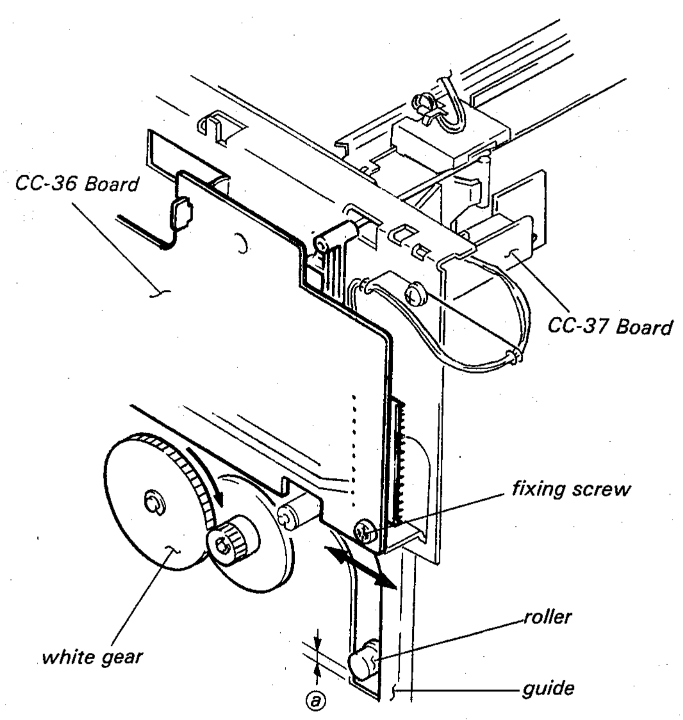
(3) When the circuit tester indicates "H", check that the clearance between the roller and the guide meets the required specification.

Adjustment procedure:

(1) Move the CC-36 Board in the direction of the arrow to meet the required specification.

- Reference:

  Turn the white gear on the right side until the clearance between the roller and the guide is 2.2 mm. Adjust the position of the Cassette-down Switch so that the circuit tester indicates "H" in this position.



Spec.:
2 mm ≦ ⓐ ≦ 3 mm

5-9. LEAF SPRING POSITION ADJUSTMENT

Check procedure:

(1) Put the unit into the PLAY mode without a cassette tape and then put the unit into the EJECT mode.

(2) Turn the Gear Box Pulley by hand so that the edge of the T Drawer Arm is at the center of the shaft as shown in the figure.

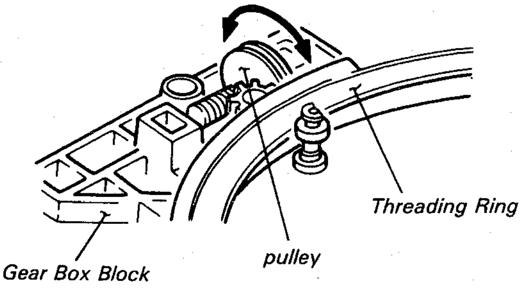
(3) Check that the clearance between the Leaf Spring and the Pinch Roller Shaft meets the required specificaiton (1).

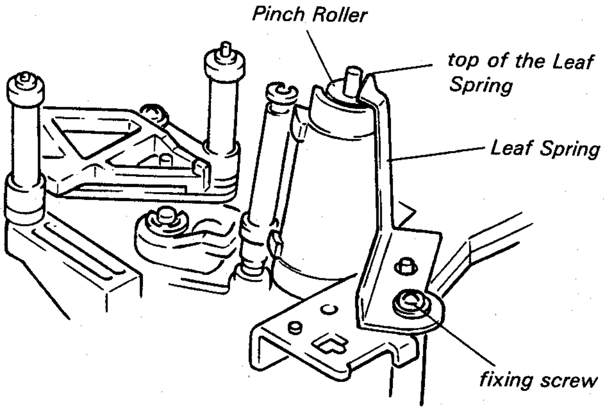
(4) Put the unit into the PLAY mode without a cassette tpae and then put the unit into the EJECT completion mode.

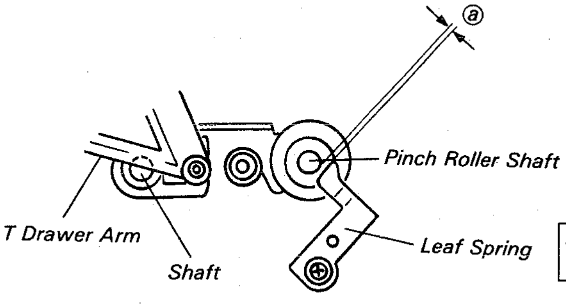
(5) Check that the Leaf Spring touches the Pinch Roller Shaft, and the clearance between the Leaf Spring and the Pinch Roller meets the required specification (2).

Adjustment procedure:

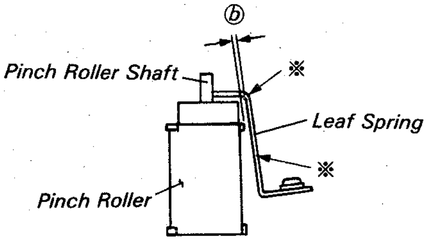
(1) Adjust the position of the Leaf Spring to meet the required specifications (1) and (2). If only specification (2) cannot be obtained, bend the ※ of the Leaf Spring to meet the required specification.


Threading Ring
Gear Box Block
pulley


Pinch Roller
top of the Leaf Spring
Leaf Spring
fixing screw


ⓐ
Pinch Roller Shaft
T Drawer Arm
Leaf Spring
Shaft

Spec.(1):
ⓐ ≦ 0.5 mm


ⓑ
Pinch Roller Shaft
※
Leaf Spring
※
Pinch Roller

Spec.(2):
There is a clearance ⓑ.

5-10. Pinch Lever Azimuth Adjustment

Tool: Pinch lever adjustment jig

Mode: EJECT completion mode

Check procudure:

(1) Remove the Pre-set Deck and install the pinch lever adjustment jig to the capstan shaft as shown in the figure.

(2) Push tne pinch lever in the direction of arrow A and set the notches of the pinch lever to B and C.

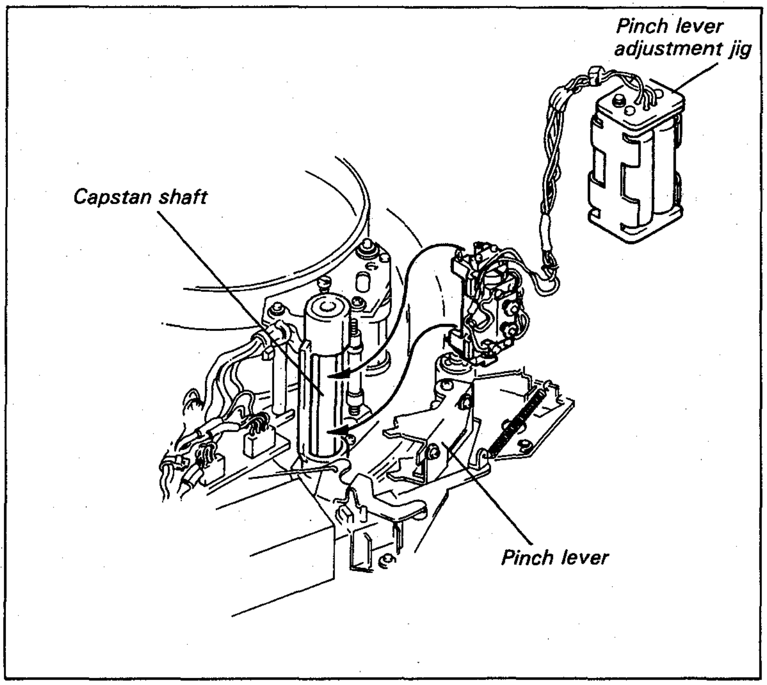
(3) When lightly pushing the pinch lever in the derection of arrow A, check that the green and the red lamps light.

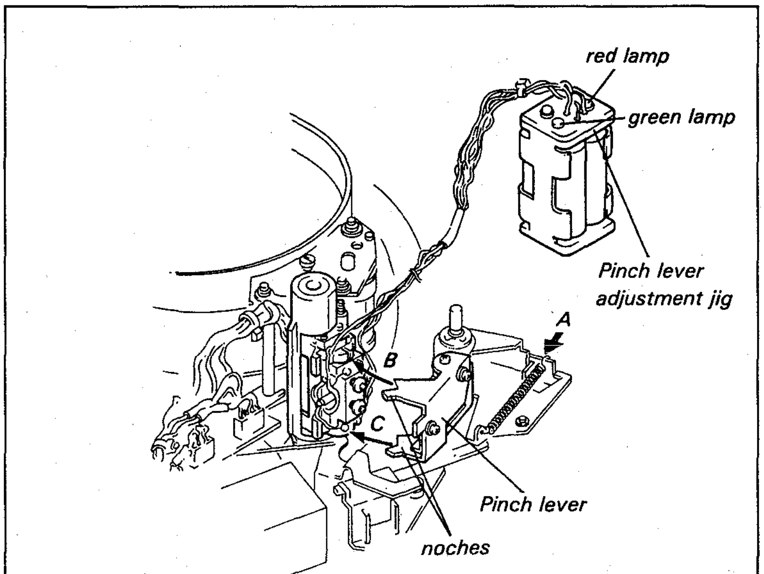
Adjustment procedure:

(1) Loosen the two fixing screws of the pinch lever and aqjust the azimuth adjustment screw to meet the required specification.

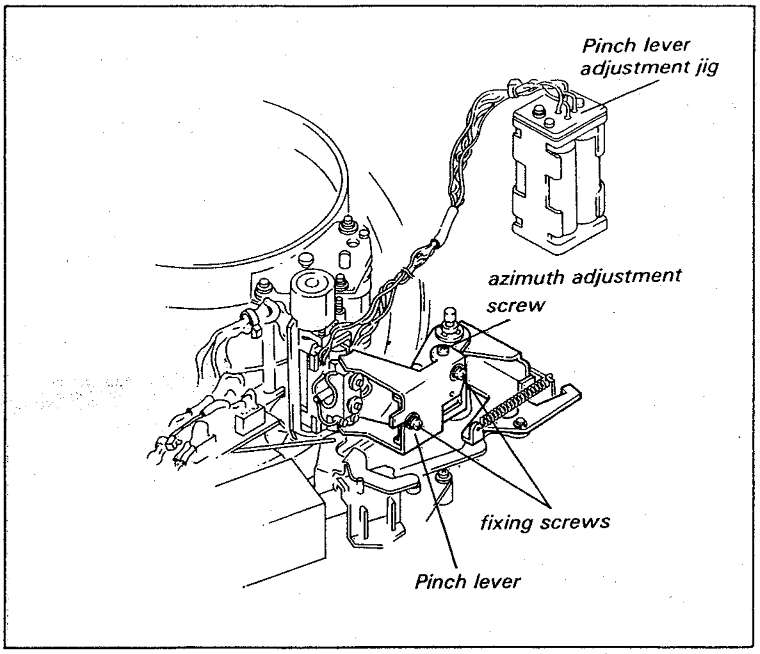
(2) After tightening the two fixing screws, check thtat the azimuth adjustment screw is thghten.

(3) Check that it meets the required specification again.


Pinch lever adjustment jig
Capstan shaft
Pinch lever


red lamp
green lamp
Pinch lever adjustment jig
A
B
C
Pinch lever
noches

Spec:
When lightly pushing the pinch lever in the direction of arrow A, check that the green and the red lamps light.


Pinch lever adjustment jig
azimuth adjustment screw
fixing screws
Pinch lever

SECTION 6
BACK TENSION AND TORQUE ALIGNMENT

6-1. BRAKE SYSTEM ADJUSTMENT

6-1-1. S Brake Torque Adjustment

Tool: Reel table torque measurement tape
(100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Grasp the top of the S Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).

(2) Place the jig tape on the S Reel Table and hook a tension scale to the end of the jig tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

Adjustment procedure:

For Spec. (1)

(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

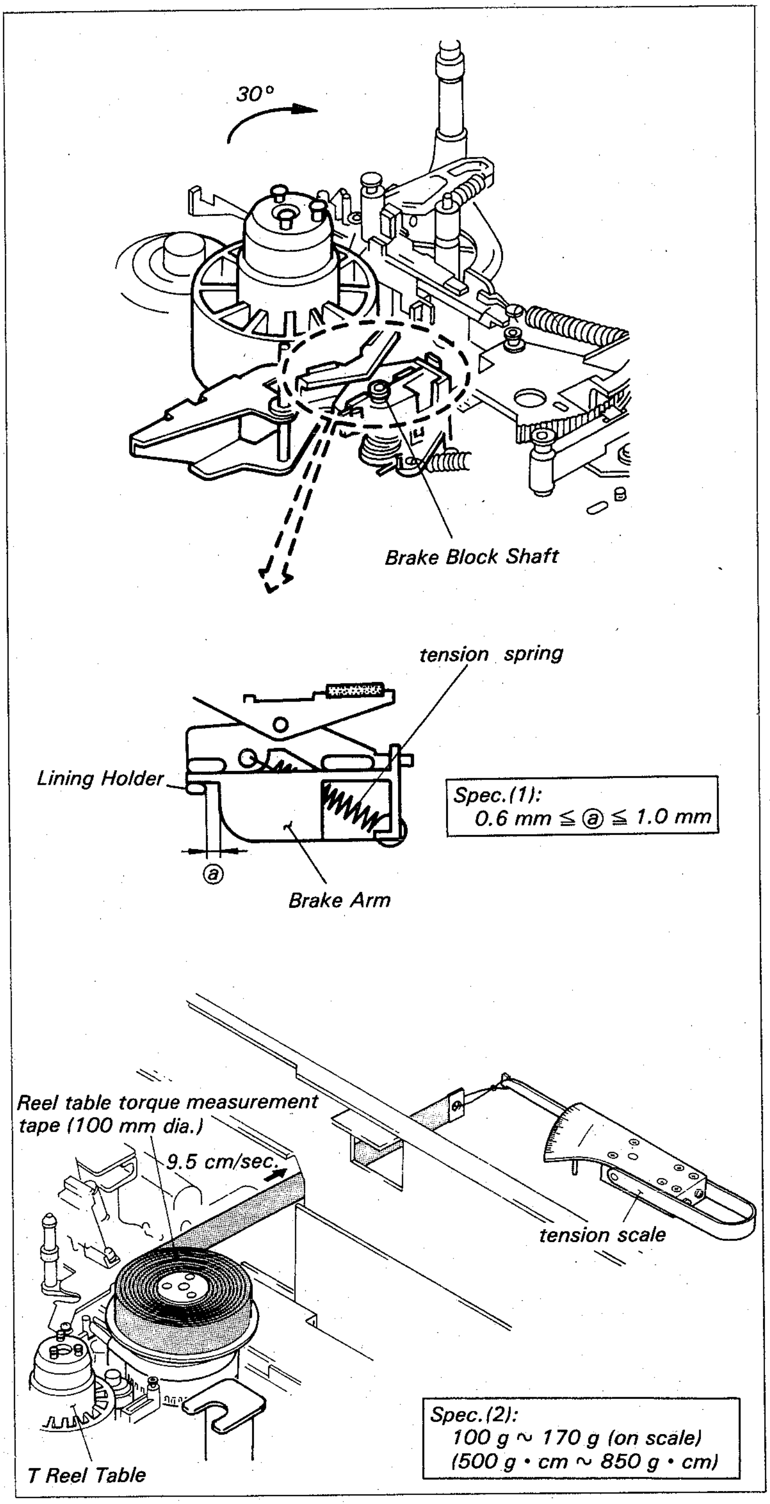
For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If dose not meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01

(4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.

(5) If does not meet the specification in Step (4), replace the reel table and check again.


30°
Brake Block Shaft
tension spring
Lining Holder
ⓐ
Brake Arm
Reel table torque measurement tape (100 mm dia.)
9.5 cm/sec.
tension scale
T Reel Table

Spec.(1):
0.6 mm ≦ ⓐ ≦ 1.0 mm

Spec.(2):
100 g ~ 170 g (on scale)
(500 g • cm ~ 850 g • cm)

6-1-2. T Brake Torque Adjustment

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (200 g full scale)

Mode: EJECT completion / power OFF mode

Check procedure:

(1) Grasp the top of the T Reel Table. While turning it in the clockwise direction approx. 30 degrees, check that the clearance between the Brake Arm and the Lining Holder meets the required specification (1).

(2) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape. While pushing the T Tension Regulator to the left, pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification (2).

Adjustment procedure:

For Spec. (1)

(1) Bend the Brake Block Shaft toward the reel table (or in the opposite direction) by hand.

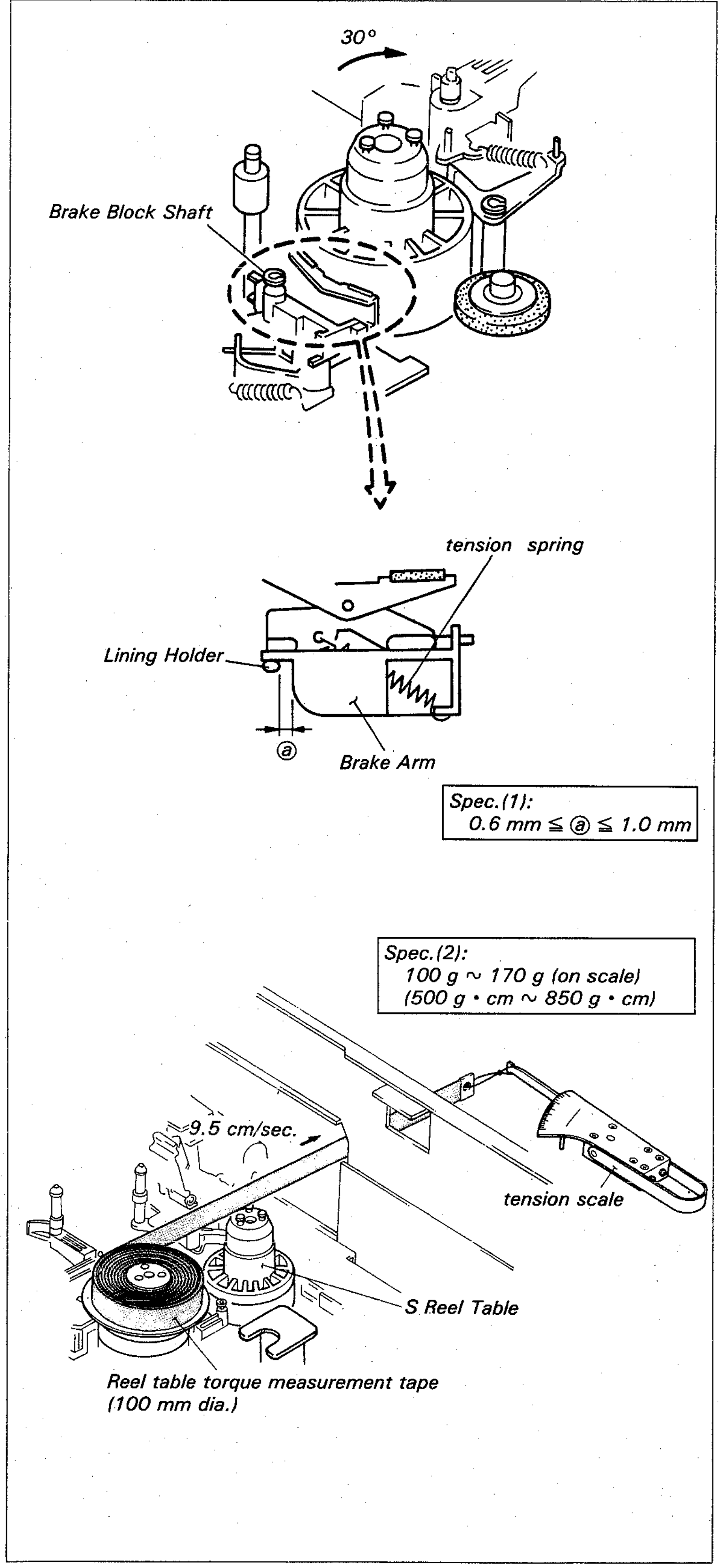
For Spec. (2)

(2) Clean the surface of the reel table with a cloth moistened with cleaning fluid.

(3) If does no meet the specification (2) in step (2), replace the tension spring to the following parts:
.3-548-124-00
.3-555-210-00
.4-907-156-01

(4) If does not meet the specification (2) in step (3), replace the Lining Holder and check again.

(5) If does not meet the specification in Step (4), replace the reel table and check again.


30°
Brake Block Shaft
tension spring
Lining Holder
ⓐ
Brake Arm
9.5 cm/sec.
tension scale
S Reel Table
Reel table torque measurement tape
(100 mm dia.)

Spec.(1):
0.6 mm ≦ ⓐ ≦ 1.0 mm

Spec.(2):
100 g ∿ 170 g (on scale)
(500 g • cm ∿ 850 g • cm)

6-1-3. REW Brake Torque Adjustment

Mode: REW mode

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (50 g full scale)

Check procedure:

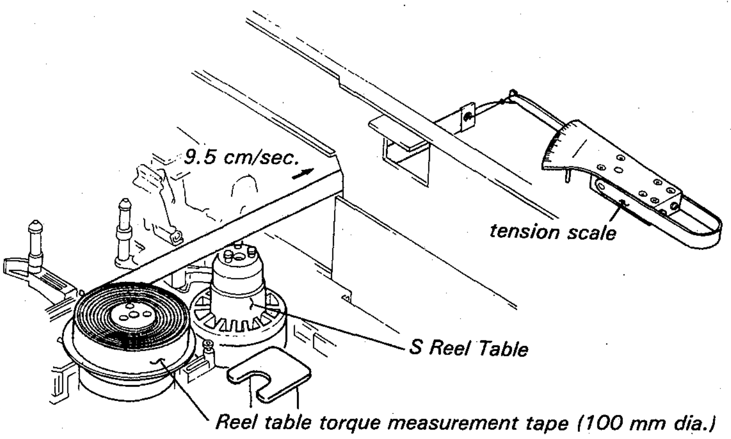
(1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the jig tape.

(2) Put the unit into the REW mode. Pull out the tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) If does not meet the specification, replace the R Brake Ass'y and check again.

(2) If does not meet the specification in Step (1), replace the Reel Table and check again.


9.5 cm/sec.
tension scale
S Reel Table
Reel table torque measurement tape (100 mm dia.)

Spec.:
18 g ~ 36 g (on scale)
(90 g • cm ~ 180 g • cm)

6-2. F FWD / REW TORQUE ADJUSTMENT

. It is required that the Section 5-7-2, T Idler Solenoid Position Adjustment and Section 5-7-3, S Idler Solenoid Position Adjustment are correct before initiating this adjustment.

Mode: F FWD and REW modes

Tool: Reel table torque measurement tape (100 mm dia.)
Tension scale (500 g full scale)

Check procedure:

F FWD Torque

(1) Place the jig tape on the T Reel Table and hook a tension scale to the end of the tape. Pull out the tape.

(2) Put the unit into the F FWD mode. Let the tape be pulled at a constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

REW Torque

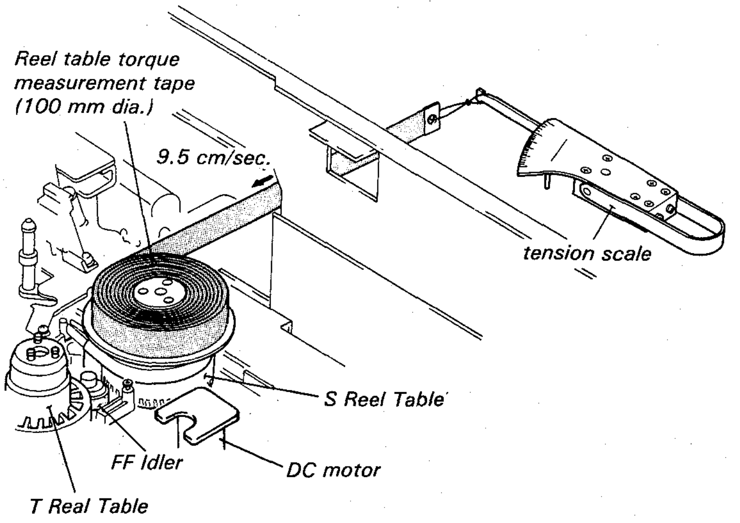
(3) Install the jig tape on the S Reel Table and hook a tension scale to the end of the tape. Pull out the tape.

(4) Put the unit into the REW mode. Let the tape be pulled at the constant speed of approx. 9.5cm/sec. Check that the scale reading meets the required specification.

Adjustment procedure:

Both F FWD Torque and REW Torque are adjusted by the following adjustment procedures.

(1) Clean the surface of the Reel Table, FF idler and belt with a cloth moistened with cleaning fluid. Check the torque again.



Spec.:
The Tension scale reading of FF Torque and RWD Torque is more than 300 g • (more than 1500 g • cm)

(2) If Step (1) does not meet the specification, put the unit into F FWD or REW mode without a cassette tape. Check that the dc voltage at the terminals of the dc motor is 10.5 ± 1.5V. If the dc voltage is out of specification, check that the circuit operation of the SY Board operates correctly.

(3) If does not meet the specification in Steps (1) and (2), replace the Reel Table, FF idler and belt.

6-3. FWD TORQUE ADJUSTMENT

Mode: x1/2 to x1 FWD SEARCH mode

Check procedure:

(1) Insert a KCS-20 cassette tape wound to the tape end portion.

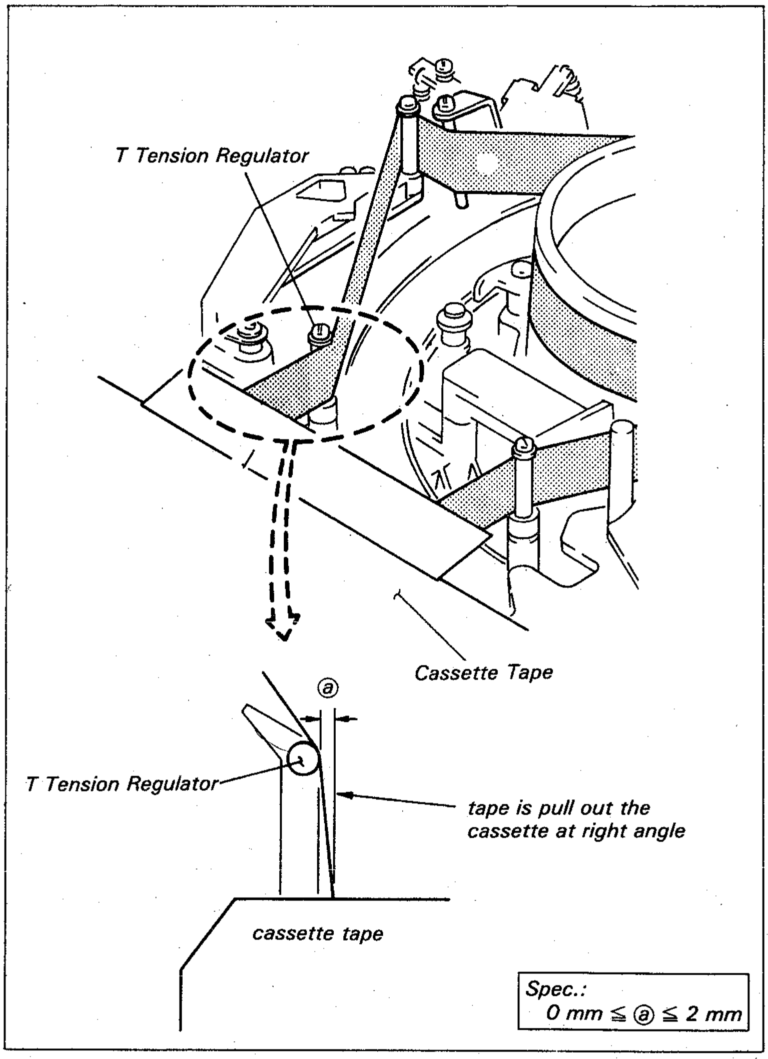
(2) Short between TP3 on the SY-141 Board and GND with a shorting clip.

(3) Put the unit into x1/2 to x1 FWD SEARCH mode with search dial.

(4) Check that the relationship between the T Tension Regulator Arm and cassette tape meets the required specification.

Adjustment procedure:

(1) Adjust RV3 on the SY-141 Board until it meets the required specification in the FWD mode.


T Tension Regulator
Cassette Tape
ⓐ
T Tension Regulator
tape is pull out the cassette at right angle
cassette tape

Spec.:
0 mm ≦ ⓐ ≦ 2 mm

6-4. REV TORQUE ADJUSTMENT

Mode: x1/2 to x1 REV SEARCH mode

Check procedure:

(1) Insert a KCA-60 cassette tape wound to the tape beginning portion.

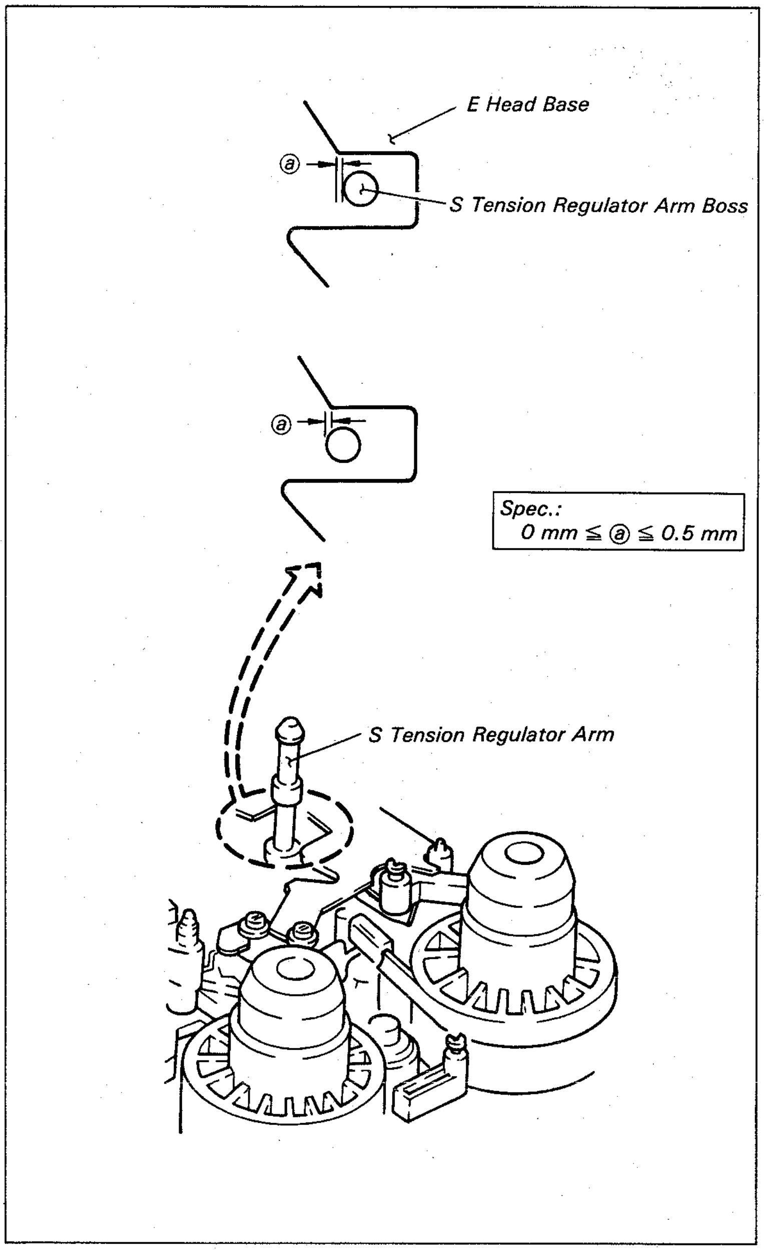
(2) Short between TP3 on the SY-141 Board and GND with a shorting clip.

(3) Put the unit into x1/2 to x1 REV SEARCH mode with search dial.

(4) Check that the relationship between the S Tension Regulator Boss and the bracket of the Erase Head Base meets the required specification.

Adjustment procedure:

(1) Adjust RV2 on the SY-141 Board until it meets the required specification.

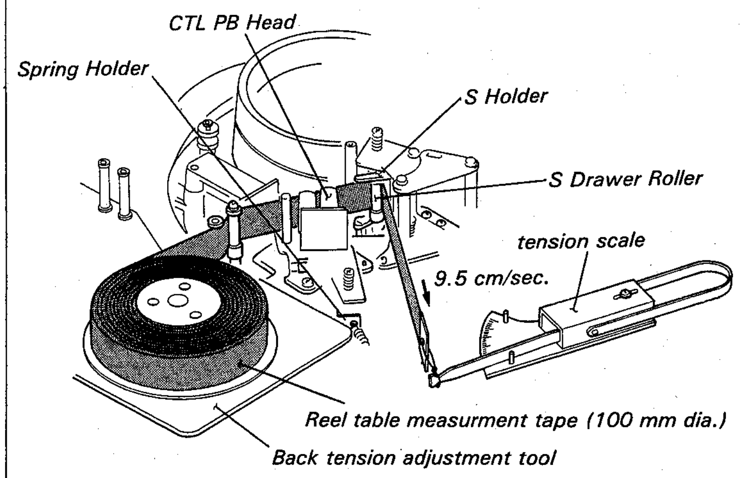

E Head Base
ⓐ
S Tension Regulator Arm Boss
ⓐ
S Tension Regulator Arm

Spec.:
0 mm ≦ ⓐ ≦ 0.5 mm

6-5. F FWD BACK TENSION ADJUSTMENT

- It is required that the Section 5-6-3, S Tension Regulator Operating Position Adjustment is correct before initiating this adjustment.
- It is required that the Section 6-6, FWD Back Tension Adjustment is performed after this adjustment.

Tool: Back tension adjustment jig
Reel table torque measurement tape
(100 mm dia.)
Tension scale (50 g full scale)



Spec.:
40 g ~ 47 g (on scale)

Preparation:

(1) Turn the power ON and put the unit into the FR-STOP mode. (When the power is ON, the S Drawer Arm moves and the unit automatically enters the FR-STOP mode.)

(2) Turn the Pulley of Gear Box Block by hand in the direction of the Threading Ring until the S Drawer Roller is in front of the CTL PB Head.

(3) Place the Back Tension Adjustment Jig.

(4) Place the jig tape on the S Reel Table and pull out the tape as shown in the figure. Check that the tape does not curl at the flange of the S Drawer Roller.

(5) Turn the Pulley in the opposite direction in Step (2) until the S Drawer Roller is engaged with the S Holder.

(6) Hook a tension scale to the end of the tape.

Check procedure:

(1) Press the F FWD button and put the unit into the F FWD mode.

(2) Pull out a tape at a constant speed of approx. 9.5cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Move the position of the Spring Holder with a flatblade screwdrivers (3mm dia.) to meet the required specification.

(2) After the adjustment, perform the check procedures again.

(3) Perform the Section 6-6, FWD Back Tension Adjustment.

6-6. FWD BACK TENSION ADJUSTMENT

Tool: Back tension measurement special cassette tape

This cassette should be prepared as follows:

- Wind up tape to the S Reel and remove the ※ marked seven fixing screws on the back of the cassette as shown in the figure. Remove the upper half of the cassette. (fig.1) Cut the cassette tape and put a piece of adhesive tape on the end of the cassette tape, and then make a hole through it. Lace a piece of string through the hole and tie a small loop. (fig.2)

Tension scale (100 g full scale)

Preparation:

(1) Push the Skew Lock Arm in the direction of the arrow.

(2) Place the special cassette tape on the reel tables and pull out the tape as shown in the figure.

(3) Hold the special tape with a hand securely at the position as shown in the figure. Turn the power ON and put the unit into the FR-STOP mode.
Check that the tape does not curl at the flange of the S Drawer Roller.

(4) Hook the tension scale to the end of the special tape. Be sure that the tape does not curl at the upper or lower flange of the S Drawer Roller.

Check procedure:

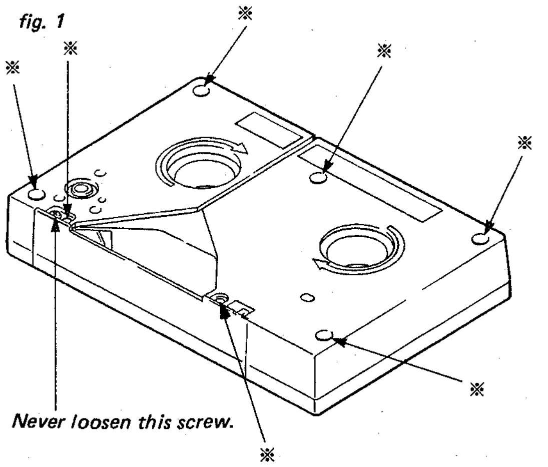
(1) Put the unit into the PLAY mode. Pull out the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

Adjustment procedure:

(1) Adjust the position of the proper spring hook of the Skew Arm B to meet the required specification.

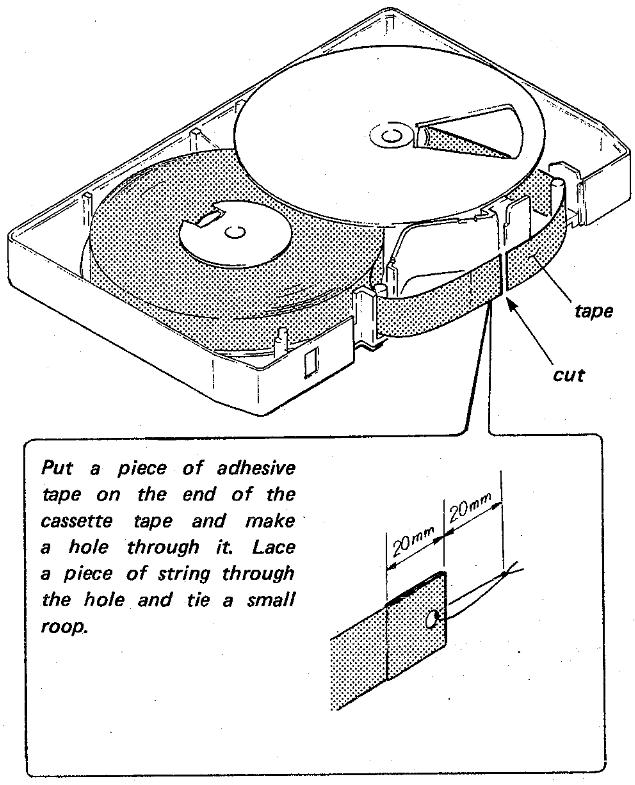
(2) After adjustment, perform the check procedures again.

fig. 1

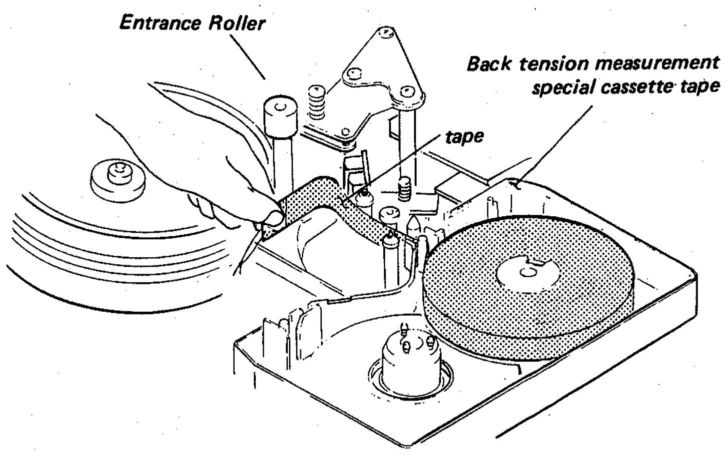


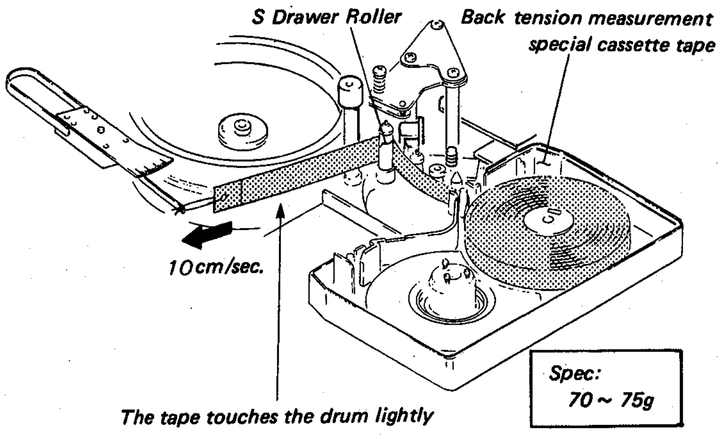
Never loosen this screw.

fig. 2



Put a piece of adhesive tape on the end of the cassette tape and make a hole through it. Lace a piece of string through the hole and tie a small roop.


Entrance Roller
Back tension measurement special cassette tape
tape


S Drawer Roller
Back tension measurement special cassette tape
10cm/sec.
The tape touches the drum lightly
Spec: 70 ~ 75g

SECTION 7
TAPE RUN ALIGNMENT

7-1. F FWD/REW MODES TAPE PATH ADJUSTMENT

Mode: F FWD and REW modes

Check procedure:

(1) Inserat a KCA-60 cassette tape which has advanced about half way through (about 30 minutes). Put the unit into the REW mode.

(2) Check that the tape tension is equal around the T Drawer Arm. (Spec.1)

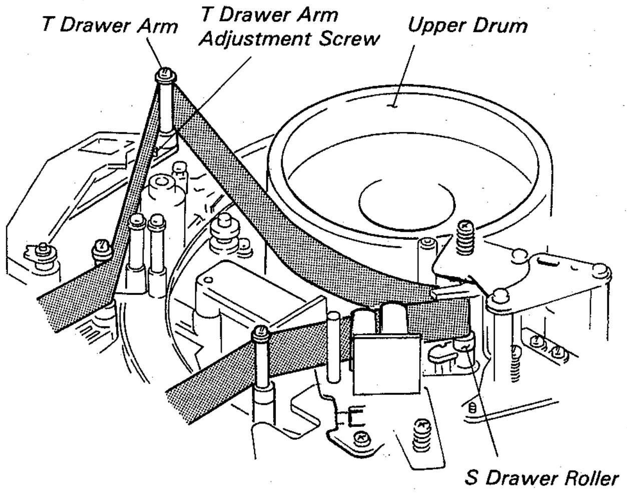
(3) Check that the tape runs without any curling at the upper or lower flange of the S Drawer Roller in the REW mode. (Spec. 2)

(4) Put the unit into the STOP mode, and then into the REW mode. Check that the tape runs without any curling at the S Drawer Roller at the moment just after entering the REW mode. (Spec. 3)

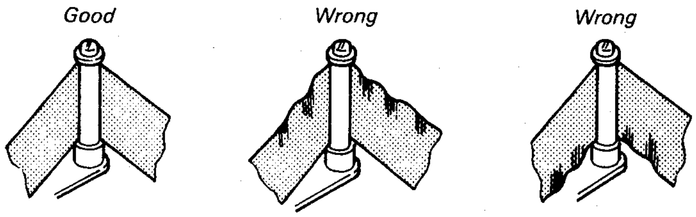
(5) Put the unit into the F FWD mode. Check that the tape runs without any curling at the S Drawer Roller and T Drawer Arm at the moment of just after entering the F FWD mode. (Spec. 4)

Adjustment procedure:

(1) Adjust the slantness of the T Drawer Arm by turning the T Drawer Arm Adjustment Screw.



Spec.(1):



7-2. T CORRECTION GUIDE SLANTNESS ADJUSTMENT

Tool: Dental mirror

Check procedure:

(1) Insert a KCA-60 cassette tape and put the unit into the FR-STOP mode. Just as the Pinch Roller passes in front of the T Correction Guide, quickly turn the power OFF.

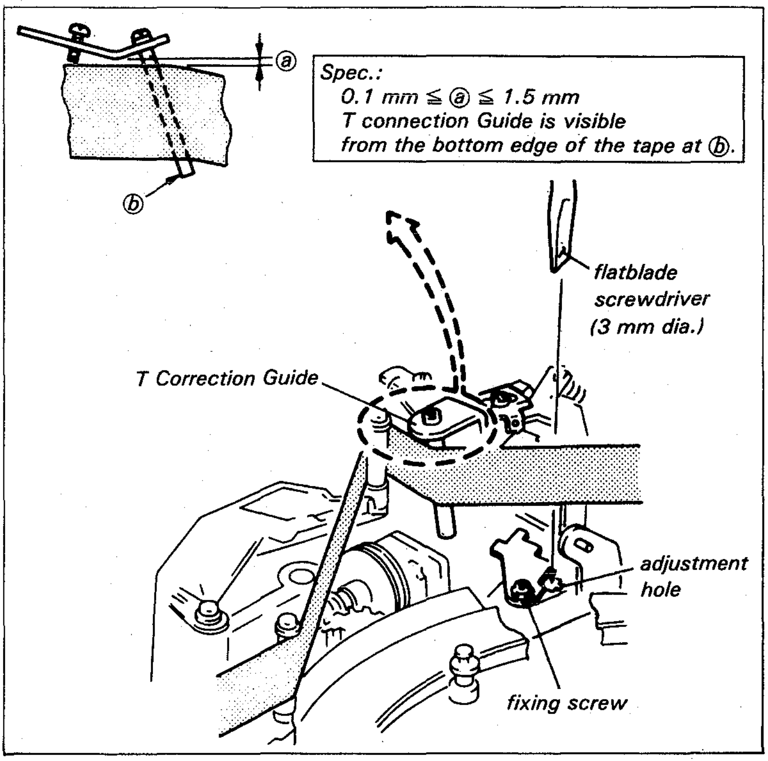
(2) Check that the clearance between the upper bracket of the T Correction Guide and the top edge of the tape meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the T Correction Guide 1/4 to 1/2 turn.

(2) Adjust the position of the T Correction Guide with a flatblade screwdriver (3 mm dia.) to meet the required specification.

(3) After adjustment, perform Section 7-4, PLAY Mode Tape Path Adjustment (1).



Spec.:
0.1 mm ≦ ⓐ ≦ 1.5 mm
T connection Guide is visible from the bottom edge of the tape at ⓑ.

7-3. TIME CODE HEAD ADJUSTMENT

- The Time Code Head is located near the drum. During adjustment of the Time Code Head, be sure to not damage the video head or scratch the drum.
- The Time Code Head Zenith Adjustment is closely related to the Azimuth Adjustment and the Height Adjustment. When performing any of these aqjustments, always perform the other two adjustments at the same time.

7-3-1. Time Code Head Zenith Adjustment

Tool: Flatness plate

Mode: EJECT completion mode

Check procedure:

(1) Place the Flatness Plate against the TG-2 and the Time Code Head. Check that the clearance between the TG-2 and the Flatness Plate meets the required specification.

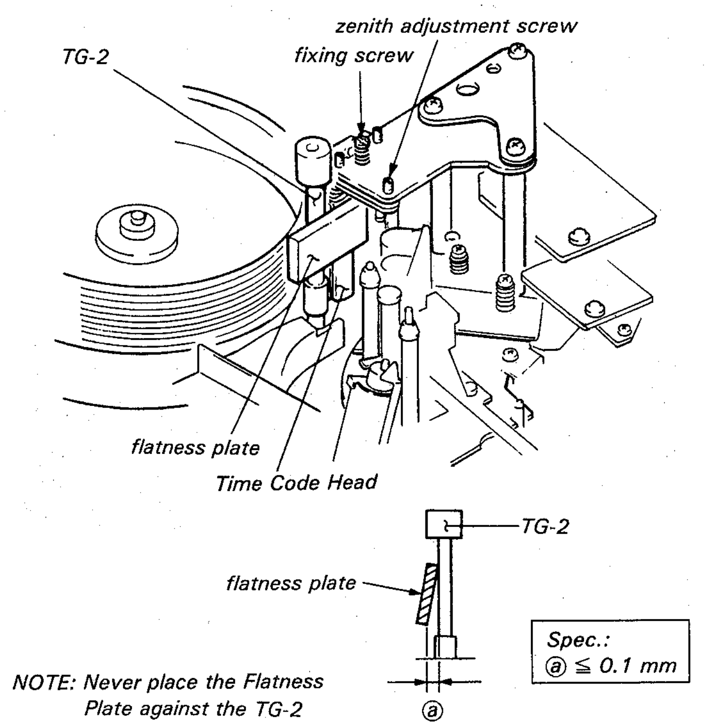
Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Adjust the zenith of the Time Code Head by turning the zenith adjustment screw to meet the required specification.

(3) Tighten the fixing screw and performn the check procedure.

(4) After adjustment, perfotm the Time Code Head Azimuth Adjustment and the Height Adjustment.



NOTE: Never place the Flatness Plate against the TG-2 Strongly.

Spec.:
ⓐ ≦ 0.1 mm

7-3-2. Time Code Head Azimuth Adjustment

Mode: EJECT completion mode

Check procedure:

(1) Check that the clearance between the top or the bottom of the Time Code Head and the TG-2 is parallel.

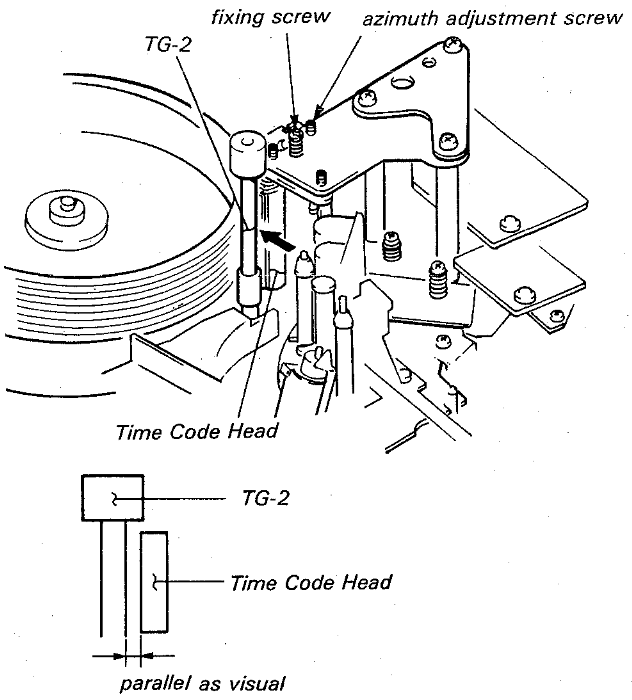
Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

(2) Adjust the azimuth of the Time Code Head by turning the azimuth adjustment screw to meet the required specification.

(3) Tighten the fixing screw and perform the check procedure.

(4) After adjustment, perform the Time Code Head Zenith Adjustment and the Height Adjustment.


fixing screw
azimuth adjustment screw
TG-2
Time Code Head
TG-2
Time Code Head
parallel as visual

7-3-3. Time Code Head Head-to-tape Contact Adjustment

Tool: Alignment tape, RR5-1SD

Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP405 on the NR-31 Board.

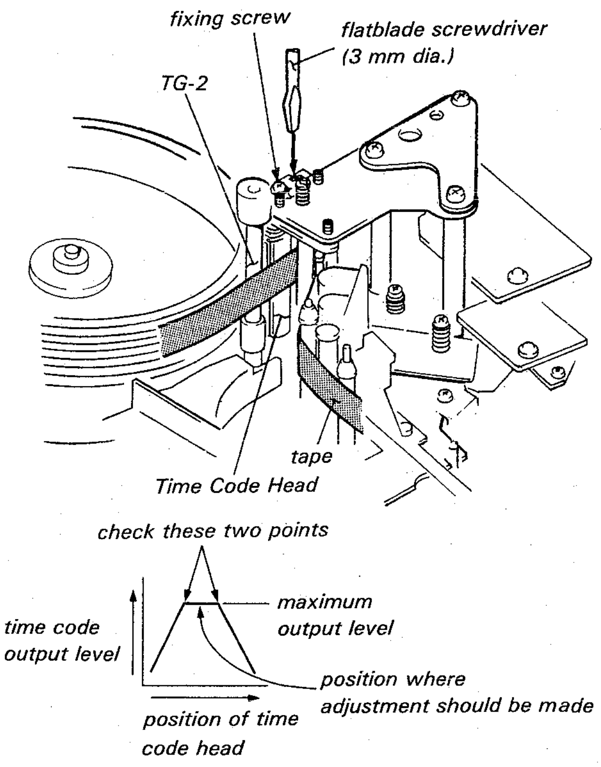
(2) Playback the time code signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the fixing screw of the head-to-tape contact adjustment 1/4 to 1/2 turn.

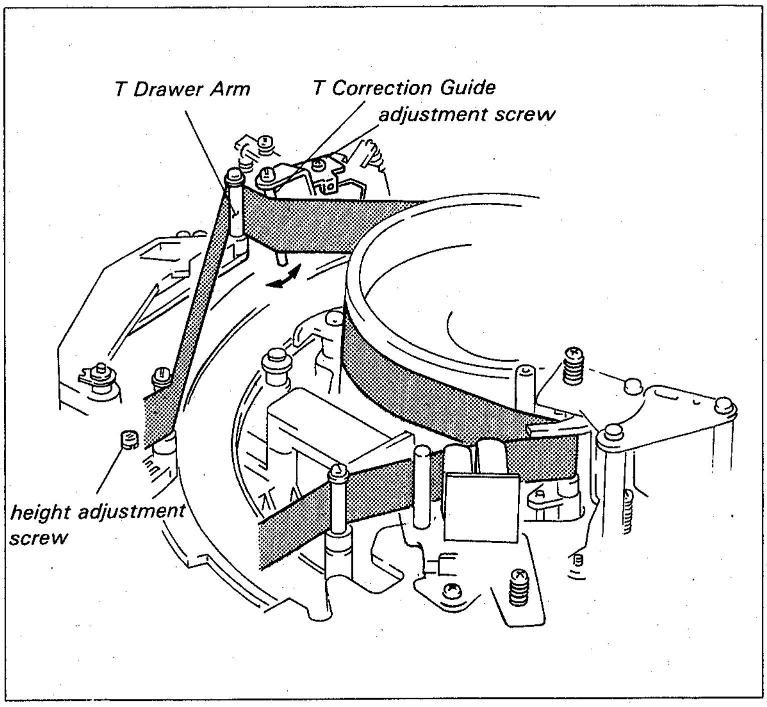
(2) Insert a flatblade screwdriver (3mm dia.) into the notch as shown in the figure. Find the two points where the output waveform is at maximum and just starts to decrease.

(3) Adjust the position of the Time Code Head Block with a flatblade screwdriver (3 mm dia.) to the center of these two points. After adjustment, tighten the fixing screw.


fixing screw
flatblade screwdriver (3 mm dia.)
TG-2
tape
Time Code Head
check these two points
maximum output level
time code output level
position where adjustment should be made
position of time code head

7-4. PLAY MODE TAPE PATH ADJUSTMENT (1)

. It is required that Section 7-2, T Correction Guide Slantness Adjustment and Section 7-1, F FWD/REW Modes Tape Path Adjustment are correct before initiating this adjustment.



Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) Check that the tape runs without any curling at the upper or lower flange of the T Drawer Guide. (Spec.1)

(3) Check that tape tension is equal at the top and bottom edges of the tape around the T Drawer Guide, and that the tape runs without any curling at the lower flange of the T Drawer Guide. (Spec.2)

Adjustment procedure:

For Spec.1

(1) Adjust the height of the T Drawer Arm by turning the T Drawer Arm Height Adjustment Screw.

For Spec.2

(2) Bend the T Correction Guide in the direction of the arrow. Turn the adjustment screw if necessary to meet the required specification.

7-5. PLAY MODE TAPE PATH ADJUSTMENT (2)

Tool: Dental mirror

Mode: PLAY mode with a cassette tape

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes). Put the unit into the PLAY mode.

(2) At the ※ marks (two positions) in the figure, check that tape tension is equal at the top and bottom edges of the tape. (Spec.1)

(3) Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification (2).

Adjustment procedure:

(1) Loosen the fixing screw at the bottom of the Threading Roller.

For Spec.1

(2) Adjust the slantness of the Threading Roller by turning the slantness adjustment screw.

NOTE:

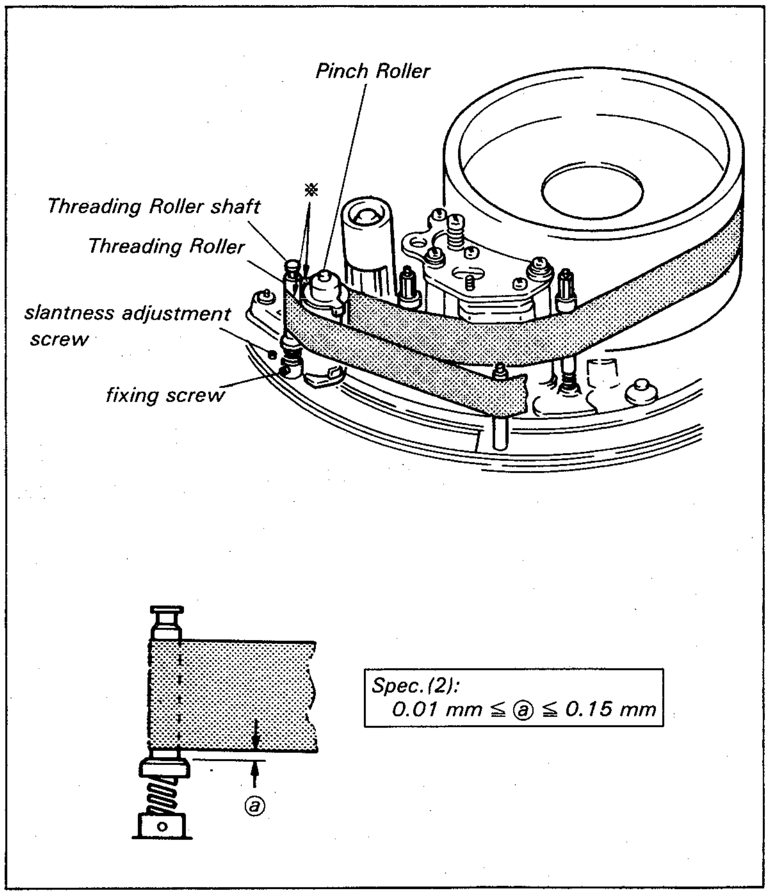
. After adjustment, perform Section 7-6, REV Mode Tape Path Adjustment and Section 7-7, Tape Path Adjustment Around The Pinch Roller.

For Spec.2

(3) Adjust the height of the Threading Roller by turning the Threading Roller Shaft to meet the required specification.

(4) Check that the slantness and the height meet the required specifications (1) and (2).

(5) After adjustment, tighten the fixing screw of the Threading Roller and perform the check procedure.



Spec.(2):
0.01 mm ≦ ⓐ ≦ 0.15 mm

7-6. REV MODE TAPE PATH ADJUSTMENT

Check procedure:

(1) Insert a KCA-60 cassette tape which has been advanced about half way through (30 minutes).

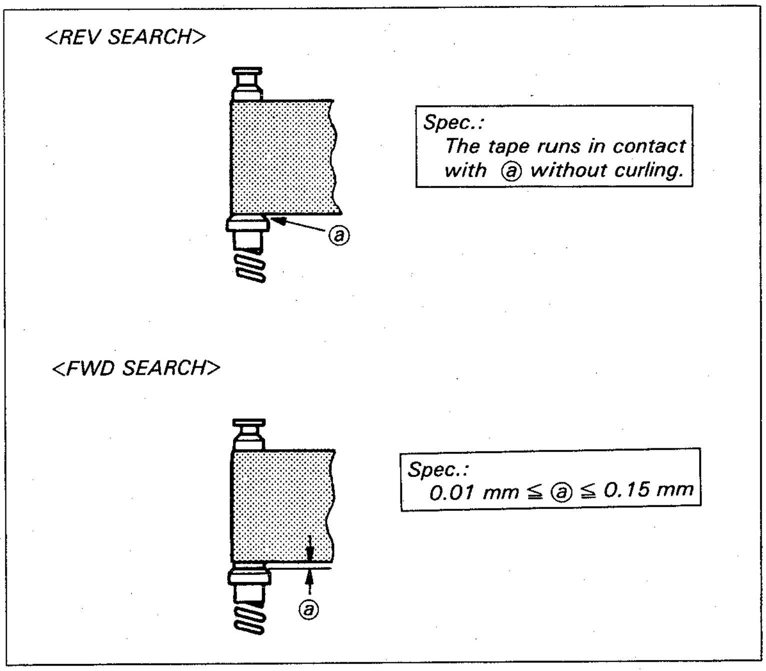
(2) Put the unit into the REV SEARCH mode. Check that the tape runs in contact with the lower flange of the Threading Roller without curling.

(3) Put the unit into the FWD SEARCH mode. Check that the clearance between the lower flange of the Threading Roller and the bottom edge of the tape meets the required specification and the tape does not curl at the lower or upper flange of TG-4.

Adjustment procedure:

(1) Fine adjust the height of the Threading Roller by turning the Threading Roller Shaft.

(2) After aojustment, perform the Section 7-5, PLAY Mode Tape Path Adjustment (2).



<REV SEARCH>
Spec.:
The tape runs in contact with ⓐ without curling.
ⓐ
<FWD SEARCH>
Spec.:
0.01 mm ≦ ⓐ ≦ 0.15 mm
ⓐ

7-7. TAPE PATH ADJUSTMENT AROUND PINCH ROLLER

Check procedure:

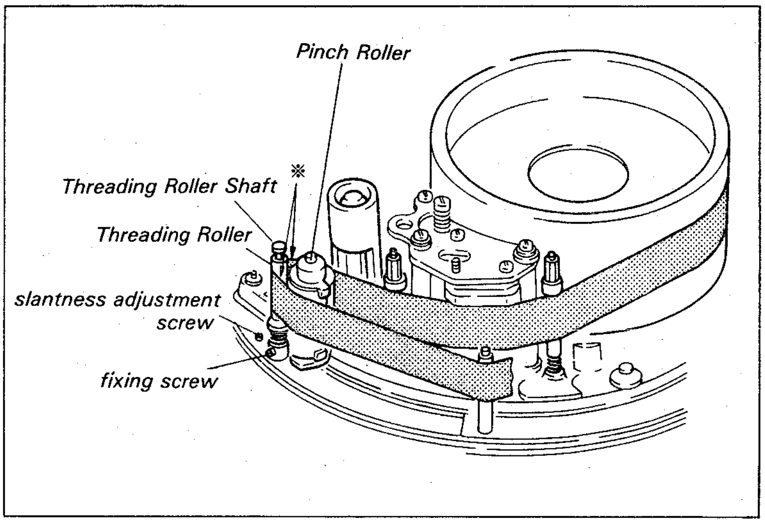
(1) Insert a KCA-60 cassette tape wound to the tape beginning portion.

(2) When put the unit into the PLAY, REV SEARCH, FWD SEARCH modes, check that tape wrinkle does not appear, or disappear within 2 sec.

Adjustment procedure:

(1) Adjust the slantness and height of the Threading Roller until it meets the required specification.

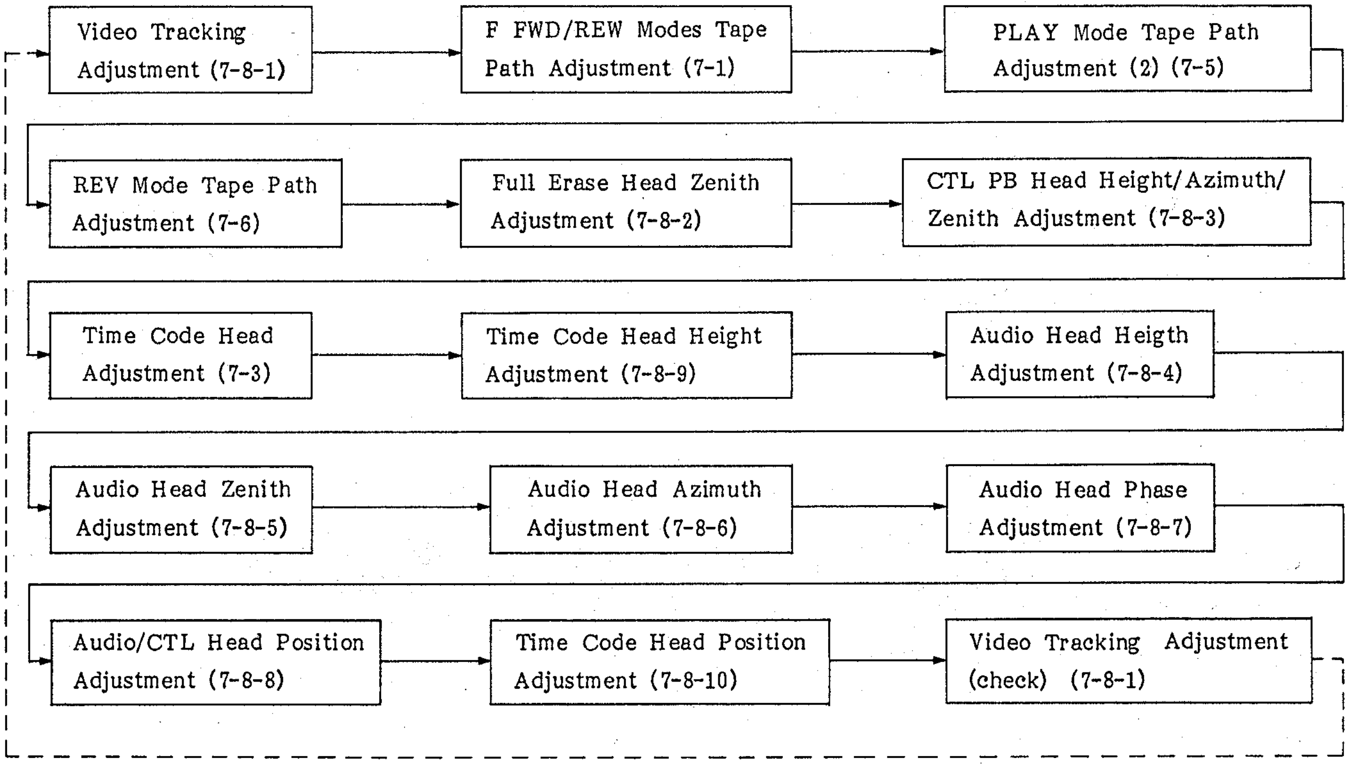
(2) After aojustment, perform Section 7-5, PLAY Mode Tape Path Adjustment (2), Section 7-6, REV Mode Tape Path Adjustment, and Section 7-8, Tracking Adjustment.



Pinch Roller
Threading Roller Shaft
※
Threading Roller
slantness adjustment screw
fixing screw

7-8. TRACKING ADJUSTMENT

- **Perfomrm the Tracking Adjustment**
  (Numbers in the parenthesis refer to Section Nos.)


Video Tracking Adjustment (7-8-1)
F FWD/REW Modes Tape Path Adjustment (7-1)
PLAY Mode Tape Path Adjustment (2) (7-5)
REV Mode Tape Path Adjustment (7-6)
Full Erase Head Zenith Adjustment (7-8-2)
CTL PB Head Height/Azimuth/ Zenith Adjustment (7-8-3)
Time Code Head Adjustment (7-3)
Time Code Head Height Adjustment (7-8-9)
Audio Head Heigth Adjustment (7-8-4)
Audio Head Zenith Adjustment (7-8-5)
Audio Head Azimuth Adjustment (7-8-6)
Audio Head Phase Adjustment (7-8-7)
Audio/CTL Head Position Adjustment (7-8-8)
Time Code Head Position Adjustment (7-8-10)
Video Tracking Adjustment (check) (7-8-1)

7-8-1. Video Tracking Adjustment

Tool: Alignment tape, RR2-1SD
Flatness plate
Oscilloscope
Dental mirror

Preparation:

(1) Connect the oscilloscope to TP18 on the DM-69 Board and EXT. TRIG to TP12 on the SV-112 Board.

(2) Playback the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF waveform maintains a flat envelope while the amplitude increases and decreases.

(2) Check that fluctuation and head-to-tape contact of the RF envelope are within the specification at the center detent position of the TRACKING control knob.

Adjustment procedure:

- The S Drawer Roller Block has three adjustment screws. These three adjustment screws function as follows:

(i) Slantness adjustment screw (a)

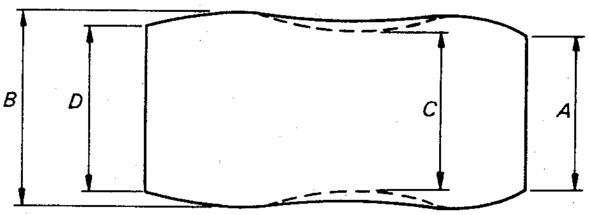
Turn this screw in the clockwise direction, and the S Drawer Roller slants in the direction of arrow A.

(ii) Slantness adjustment screw (b)

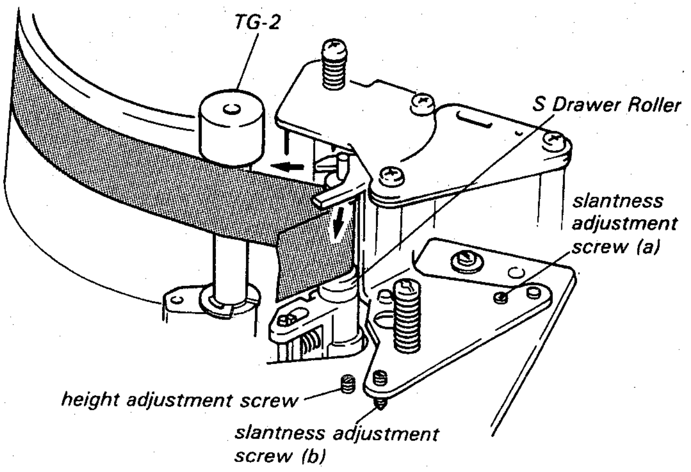
Turn this screw in the counterclockwise direction, and the S Drawer Roller slants in the direction of arrow B. This screw is used for removing tape curl at the upper flange of the S Drawer Roller. However, this screw is used only when the tape curls at the flange of the S Drawer Roller, even though the RF output waveform meets the required specification.

(iii) Height adjustment screw

Turn this screw in the clockwise direction, and the height of the S Drawer Roller lowers.



Spec.: <head to tape contact>
$\frac{A}{B} \geqq 0.70$ $\frac{D}{B} \geqq 0.70$
<fluctuation>
$\frac{C}{B} \geqq 0.90$


TG-2
S Drawer Roller
slantness adjustment screw (a)
height adjustment screw
slantness adjustment screw (b)

- When tape guides (TG-3, TG-4) are adjusted, loosen the locking screw about 1 turn and adjust the height by turning the height adjustment nut.
- **When tracking at the entrance side of the drum is not good.**

(1) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80 % of maximum.

(2) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope of the entrance side is flat.

NOTE:

(i) Check the surface of the running tape very carefully around the S Drawer Roller. Check that tape tension is equal at the top and bottom of the tape.

(ii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

- **When tracking at the center of the drum is not good.**

(It is required that the Tracking adjustment at the entrance side of the drum is correct before initiating this adjustment.)

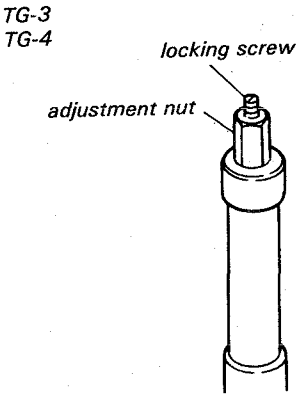
(3) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

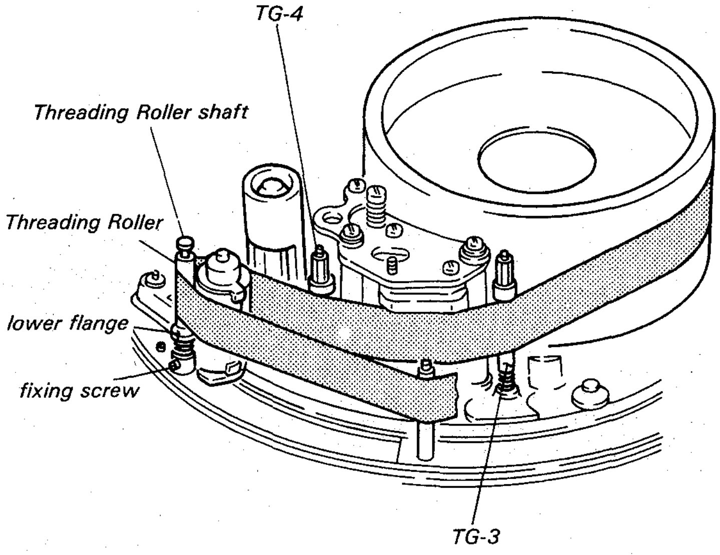
(4) Adjust the height and the slantness of the S Drawer Roller by turning the height adjustment screw and the slantness adjustment screw (a) until the RF envelope at the center of the drum is flat.

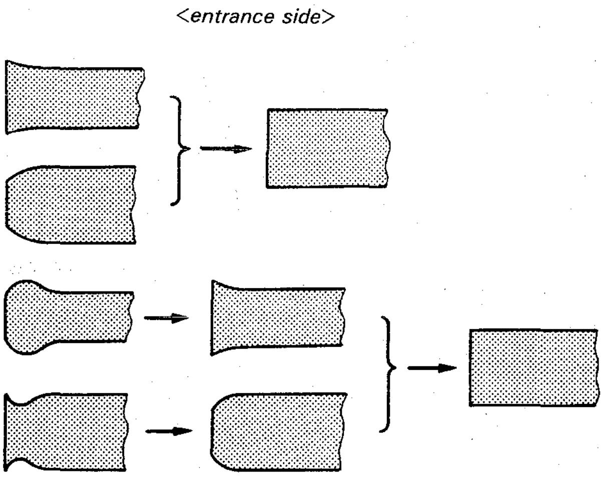
NOTE:

(i) Adjust the slantness adjustment screw (a) in the clockwise direction within a 10 degree angle.

(ii) When the tracking of the center of the drum is adjusted, the FR envelope at the entrance side of the drum should remain flat.







(iii) Check that the tape runs in contact with the upper flange of the S Drawer Roller without any curling.

(5) If the RF envelope is not flat in Step (4), adjust the height of TG-3 and TG-4.

(6) If the RF envelope is not flat in Steps (4) and (5), adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.

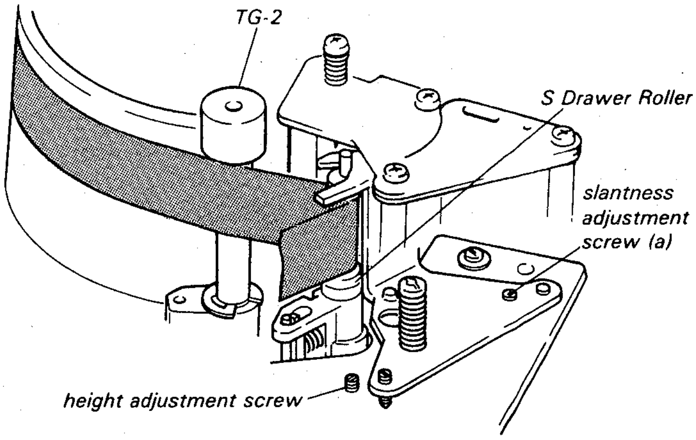
(7) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the the Threading Roller Shaft.

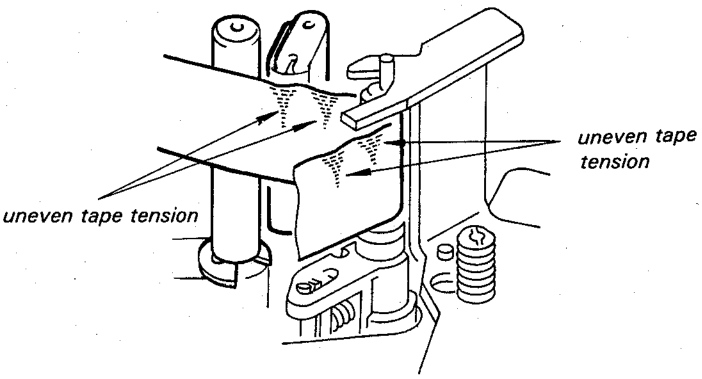
- **When loosen the fixing screw of the Threading Roller, press the STOP button. When the Threading Roller comes near the Sug-ring Stopper, turn the power OFF. Loosen the fixing screw of the Threading Roller with a L-shaped hexagonal wrench. After adjustment, tighten the fixing screw and check that it meet the required specification.**

- **When tracking at the exit side of the drum is not good.**

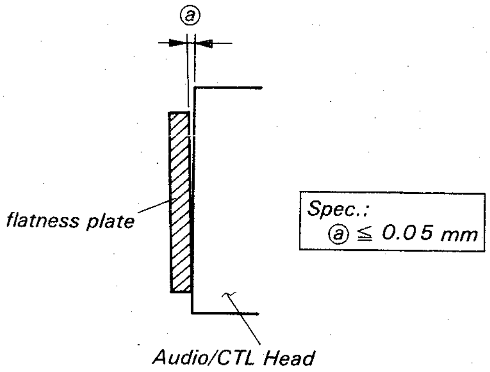
(8) Turn the TRACKING control knob until the RF envelope amplitude is 70 to 80% of maximum.

(9) If the RF envelope is not flat as shown in the figure 1, adjust the height of TG-4 until the RF envelope is flat. After this adjustment, adjust the height of TG-3 so that the tape runs in contact with the upper flange. If the RF envelope is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 until the RF envelope is flat. If it is not, adjust the zenith of the Audio/CTL Head within the allowable range. Adjust the height of TG-3 and TG-4 again.



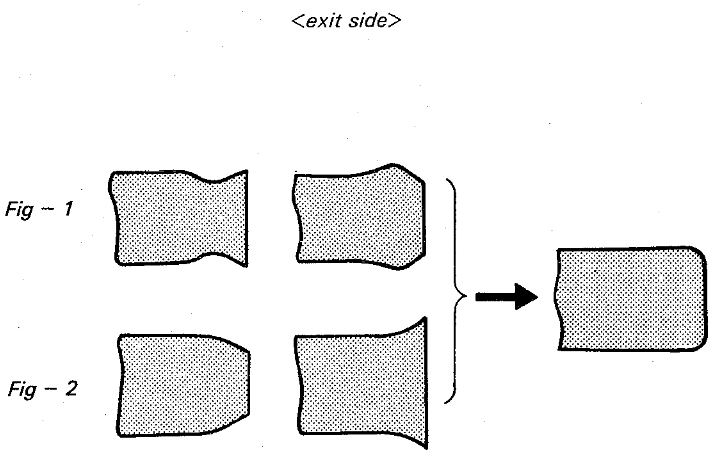


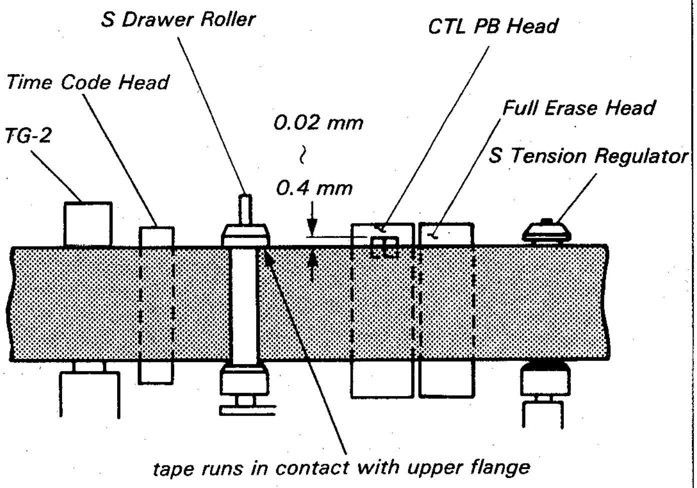
<zenith adjustment for the Audio/CTL Head>

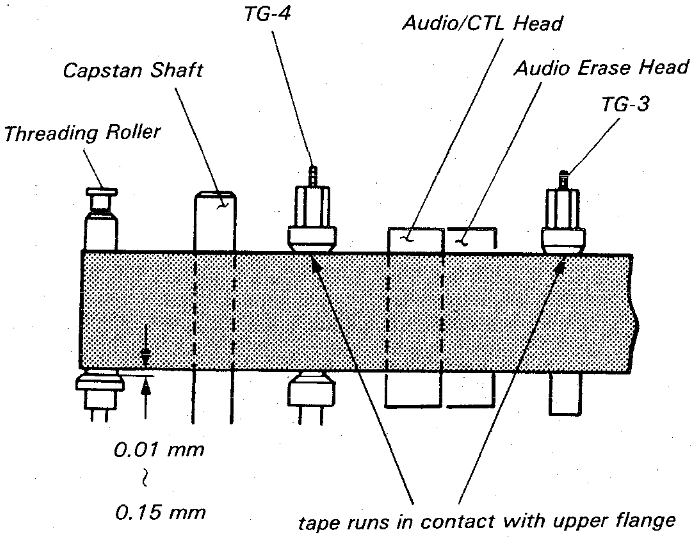


Spec.:
ⓐ ≦ 0.05 mm

(10) Check that the clearance between the bottom edge of the tape and the lower flange of the Threading Roller is 0.01 mm to 0.15 mm. If it is out of the specification, adjust the height of the Threading Roller by turning the Threading Roller Shaft.




S Drawer Roller
CTL PB Head
Time Code Head
Full Erase Head
TG-2
0.02 mm
~
0.4 mm
S Tension Regulator
tape runs in contact with upper flange


TG-4
Audio/CTL Head
Capstan Shaft
Audio Erase Head
TG-3
Threading Roller
0.01 mm
~
0.15 mm
tape runs in contact with upper flange

7-8-2. Full Erase Head Zenith Adjustment

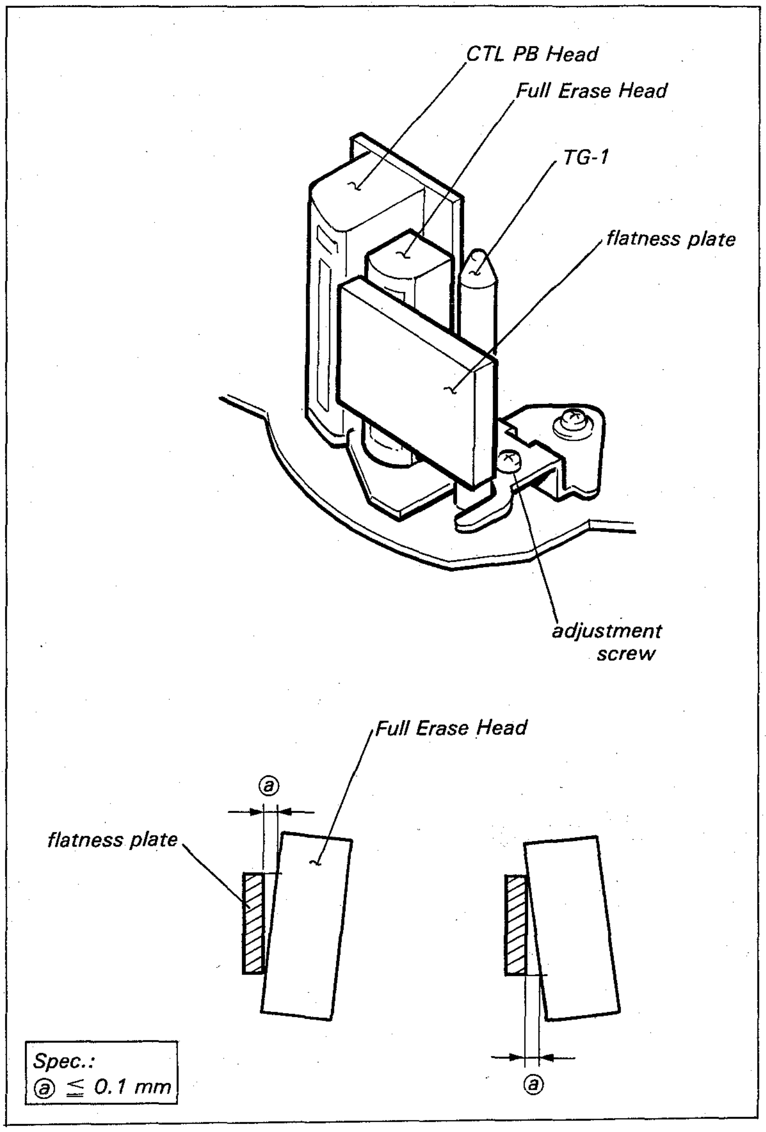
Tool: Flatness plate

Check procedure:

(1) Check that the clearance between the Full Erase Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the Full Erase Head and TG-1.

Adjustment procedure:

(1) Turn the adjustment screw in the clockwise or counterclockwise direction to meet the required specification.


CTL PB Head
Full Erase Head
TG-1
flatness plate
adjustment screw
Full Erase Head
ⓐ
flatness plate
ⓐ
Spec.:
ⓐ ≤ 0.1 mm

7-8-3. CTL PB Head Height/Azimuth/Zenith Adjustments

- **The CTL PB Head Height, Azimuth, and Zenith Adjustments are closely related. When performing any of these adjustments, always perform the other two adjustments at the same time.**
- Before initiating this adjustment, perform the Sec. 7-8-2. Full Erase Head Adjustment.

Tool: Flatness plate

Check procedure:

(1) Check that top and bottom clearances between the CTL PB Head and Full Erase Head meets the required specification. (Spec. 2 : azimuth check)

(2) Check that the clearance between the CTL PB Head and the Flatness Plate meets the required specification, when the Flatness Plate is placed on the CTL PB Head and Full Erase Head (Spec. 3 :zenith check)

(3) Insert a cassette tape, and put the unit into the PLAY mode.

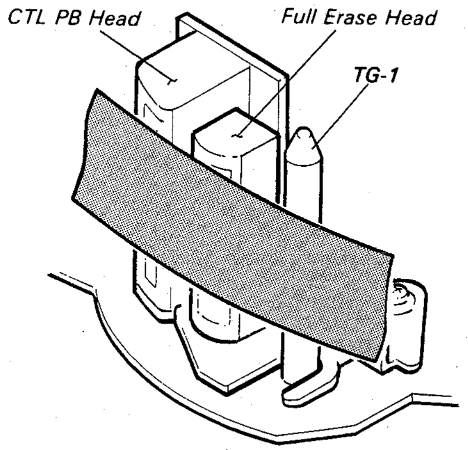
(4) Check that the relationship between the top edge of tape and the CTL PB Head meets the required specification. (Spec. 1 : height check)

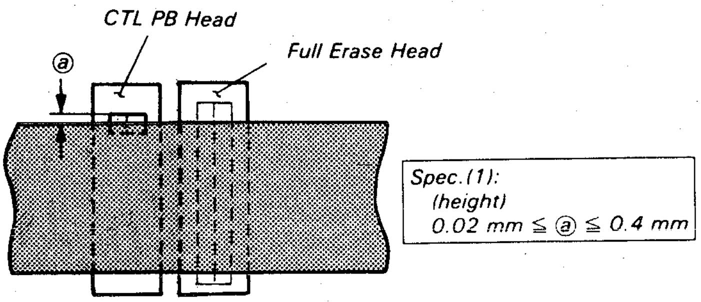
Adjustment procedure:

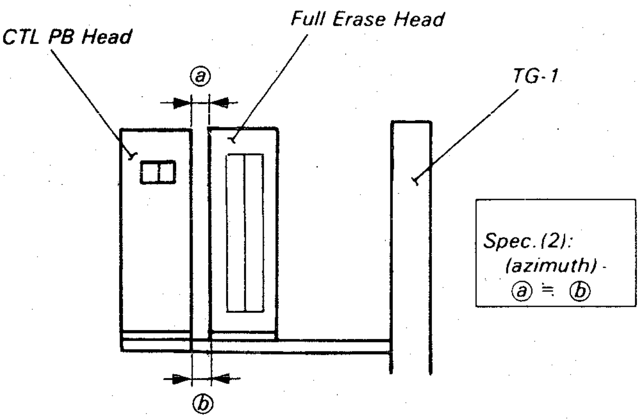
(1) Adjust azimuth adjustment screw (a) to meet the required specification (2).

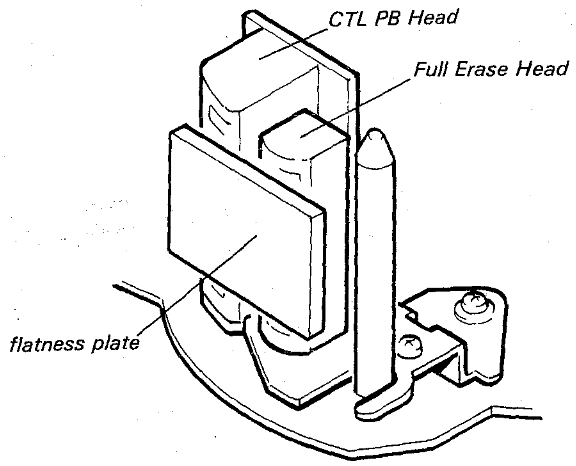
(2) Adjust zenith adjustment screw to meet the required specification (3).

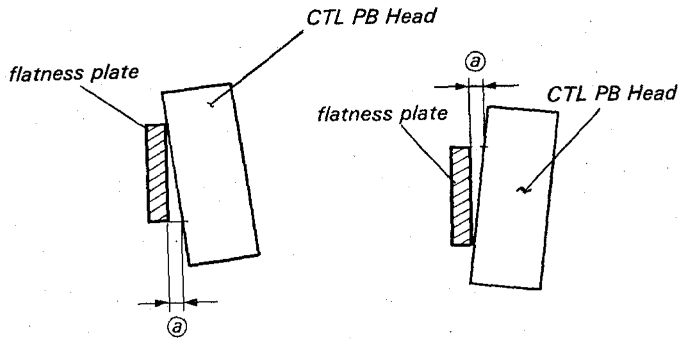
(3) Turn the three adjustment screws an equal amount in the clockwise or counterclockwise direction to meet the required specification (1).



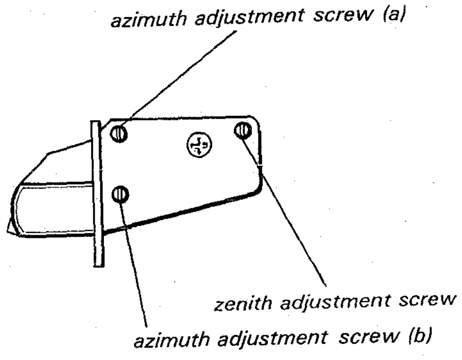





CTL PB Head
Full Erase Head
flatness plate


CTL PB Head
flatness plate
ⓐ
ⓐ
flatness plate
CTL PB Head

Spec.(3):
(zenith)
ⓐ ≦ 0.1 mm


azimuth adjustment screw (a)
zenith adjustment screw
azimuth adjustment screw (b)

7-8-4. Audio Head Height Adjustment

Tool: Alignment tape, RR5-3SA
VTVM or oscilloscope

Preparation:

(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.

Check procedure:

(1) Check that the CH-1 output level increase is less than 0.5 dB when pressing down at A. If it is out of the specification, perform adjustment procedures (1) and (2).

(2) Check that the CH-2 output level increase is less than 0.5 dB when pushing up at B. If it is out of the specification, perform adjustment procedures (3) and (4).

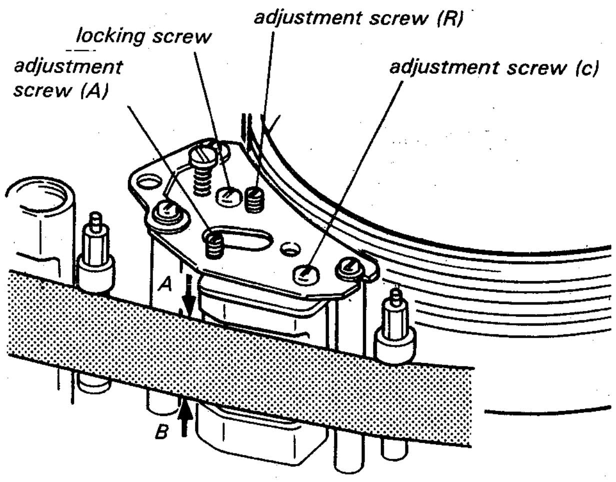
Adjustment procedure:

(1) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the counterclockwise direction. Turn adjustment screw (C) the same amount in the clockwise direction.

(2) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.

(3) Loosen the locking screw and turn adjustment screws (R) and (A) an equal amount in the clockwise direction. Turn the adjustment screw (C) the same amount in the counterclockwise direction.

(4) Tighten the locking screw and check the height of the Audio Head as described in the check procedure.



Spec.:
- *The level increase of the CH-1 is less than 0.5 dB when pressing down at A.*
- *The level increase of the CH-2 is less than 0.5 dB when pushing up at B.*

7-8-5. Audio Head Zenith Adjustment

Tool: Flatness plate

Check procedure:

(1) When the Flatness Plate is set on the Audio Head and TG-3, check that the clearance between the Audio Head and the Flatness Plate meets the required specification.

Adjustment procedure:

. When the clearance is out of spec. at the top of the Audio Head.

(1) Turn adjustment screw (R) in the counterclockwise direction.

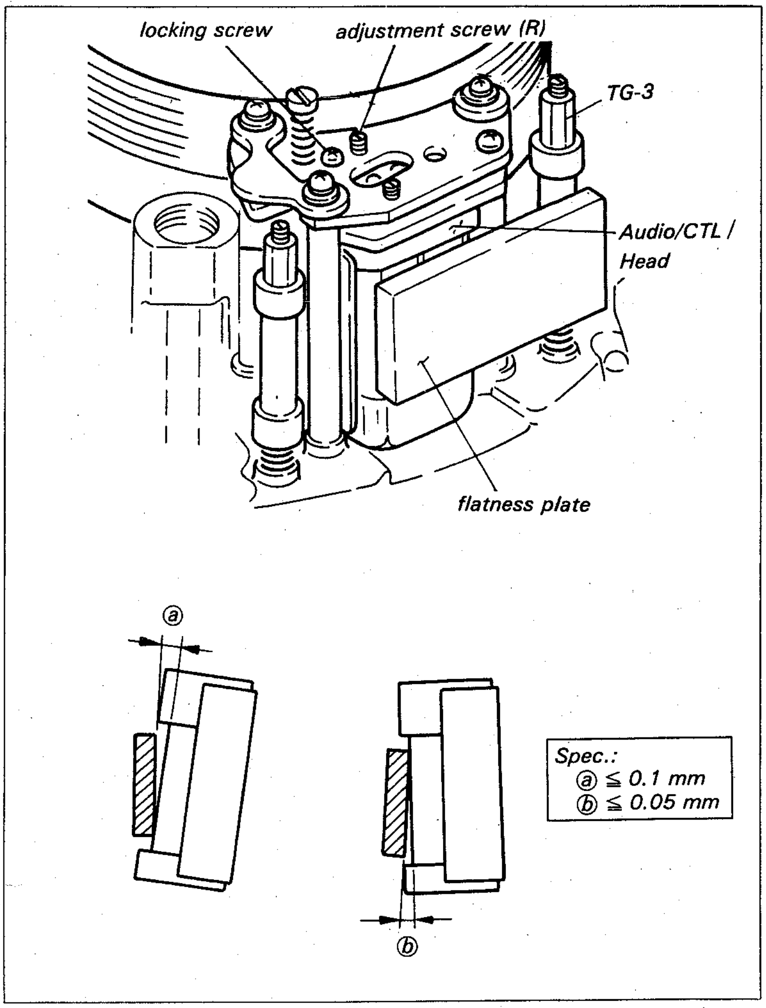
(2) Tighten the locking screw and check the zenith again.

. When the clearance is out of spec. at the bottom of the Audio Head.

(3) Loosen the locking screw 1/4 to 1/2 turn.

(4) Turn adjustment screw (R) in the clockwise direction.

(5) Tighten the locking screw and check the zenith again.



Spec.:
ⓐ ≦ 0.1 mm
ⓑ ≦ 0.05 mm

7-8-6. Audio Head Azimuth Adjustment

Tool: Alignment tape, RR5-3SA
VTVM or oscilloscope

Preparation:

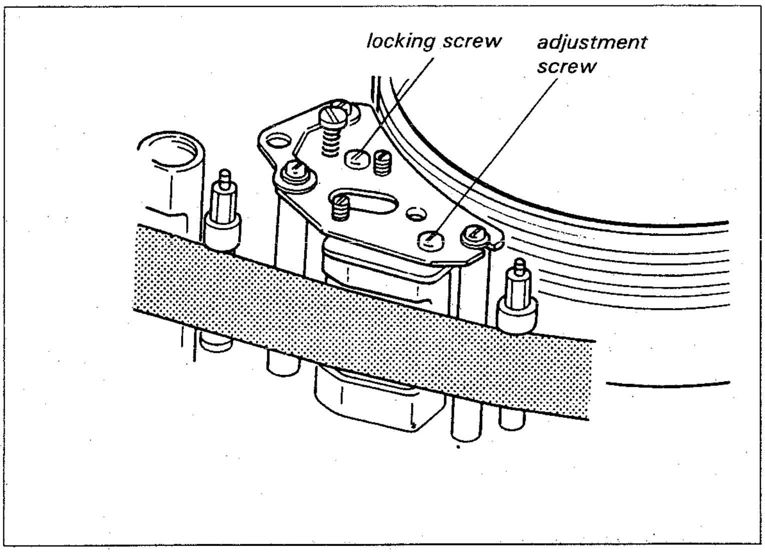
(1) Connect the VTVM or oscilloscope to the AUDIO OUT CH-1 or CH-2 connector of the connector panel.

(2) Playback the audio 10 kHz signal portion of the alignment tape.

Adjustment procedure:

(1) Loosen the locking screw and adjust the audio output level to maximium by turning the adjustment screw.

(2) Tighten the locking screw and performn the check procedure.



7-8-7. Audio Head Phase Adjustment

Tool: Alignment tape, RR5-3SA
Oscilloscope

Preparation:

(1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 connectors of the connector panel.

(2) Playback the audio 1 kHz signal portion of the alignment tape.

(3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6 cm.

Check procedure:

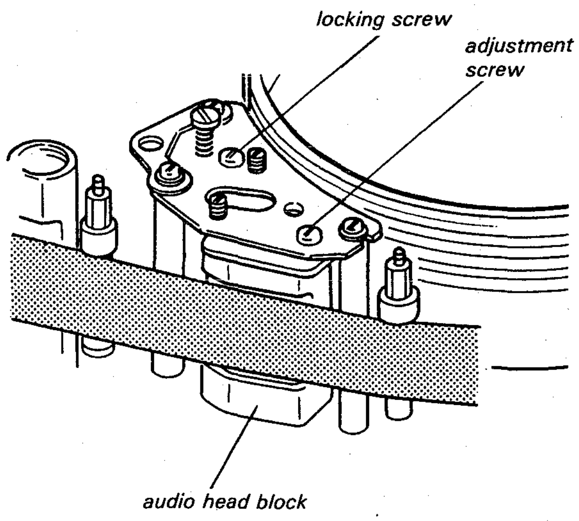
(1) Playback the audio 1 kHz signal portion of the alignment tape, and check that the vertical amplitude at the center in the horizontal direction meets the required specification.

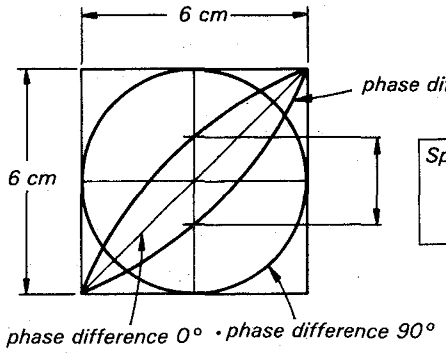
(2) Playback the audio 10 kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

Adjustment procedure:

(1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjustment screw.

(2) Tighten the locking screw and check the phase again.


locking screw
adjustment screw
audio head block


6 cm
6 cm
phase difference 6.7°
phase difference 0°
phase difference 90°

Spec.:
- *within 0.7 cm at 1kHz (within 6.7°)*
- *within 90° at 10 kHz*

7-8-8. Audio/CTL Head Position Adjustment

Tool: Alignment tape, RR2-1SD
Oscilloscope
Eccentricity screwdriver (5 mm dia.)

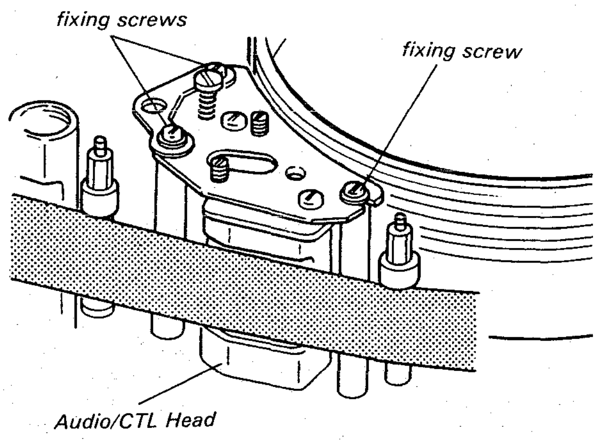
Preparation:

(1) Connect the oscilloscope to TP18 on the DM-69 Board and the EXT.TRIG to TP12 on the SV-112 Board.

(2) Playback the alignment tape.

Check procedure:

(1) While turning the TRACKING control knob, check that the RF envelope has maximum amplitude at the center detent position of the TRACKING control knob.


fixing screws
fixing screw
Audio/CTL Head

7-8-9. Time Code Head Height Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP405 on the NR-31 Board.

(2) Playback the time code signal portion of the alignment tape.

Check procedure:

(1) Check that the level increase is less than 0.5 dB when lightly pressing down or pushing up the fixing screw by hand.

Adjustment procedure:

(1) Loosen the fixing screw 1/4 to 1/2 turn.

- **The level increase is more than 0.5 dB when pushing up the fixing screw.**

(2) Turn the three adjustment screws (Height, Azimuth and Zenith) an equal amount in the counterclockwise direction.

- **The level increase is more than 0.5 dB when pressing down the fixing screw**

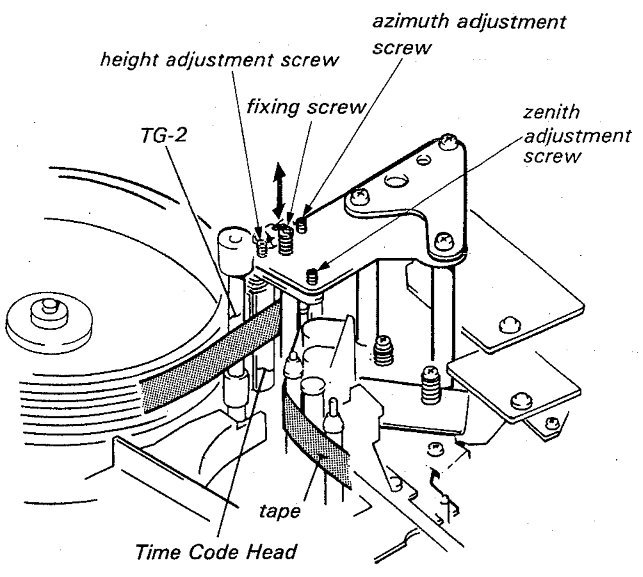
(3) Turn the three adjustment screws an equal amount in the clockwise direction.

(4) Tighten the fixing screws and performn the cneck procedure.

(5) After adjustment, perform following adjustments:

Sec.7-3-1. Time Code Head Zenith Adjustment

Sec.7-3-2. Time Code Head Azimuth Adjustment


azimuth adjustment screw
height adjustment screw
fixing screw
zenith adjustment screw
TG-2
tape
Time Code Head

7-8-10. Time Code Head Position Adjustment

Tool: Alignment tape, RR5-1SD
Oscilloscope
Eccentric screwdriver (5 mm dia.)

Preparation:

(1) Connect the oscilloscope as follows.

CH-1 : TP405 / NR-31
CH-2 : TP4 / SV-112
TRIG : TP4 / SV-112

(2) Playback the time code signal portion of the alignment tape.

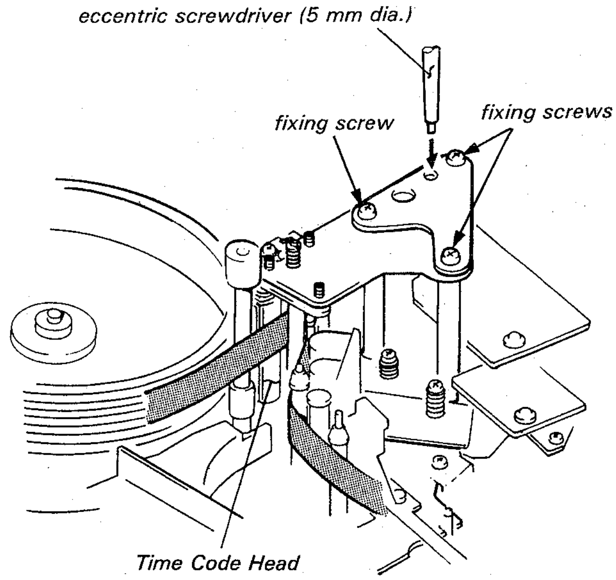
Check procedure:

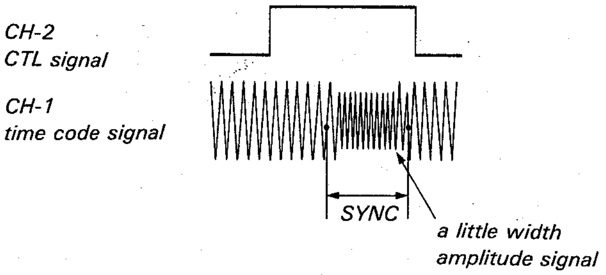
(1) Check that the phase relationship between the CTL signal and the Time Code signal meets the required specification.

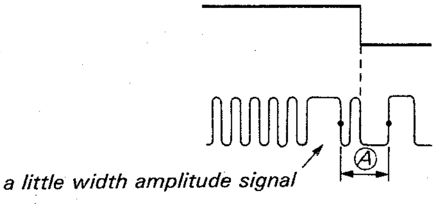
Adjustment procedure:

(1) Loosen tne three fixing screws of the Time Code Head Block 1/4 to 1/2 turn.

(2) Adjust tne position of the Time Code Head Block with an eccectric screwdriver to meet the required specification.


eccentric screwdriver (5 mm dia.)
fixing screw
fixing screws
Time Code Head


CH-2
CTL signal
CH-1
time code signal
SYNC
a little width
amplitude signal


a little width amplitude signal
Ⓐ

Spec. The falling edge is within Ⓐ period.

7-9. VIDEO HEAD DIHEDRAL ADJUSTMENT

Tool: Dihedral adjustment screwdriver
Alignment tape, RR5-3SA
Monitor TV

Check procedure

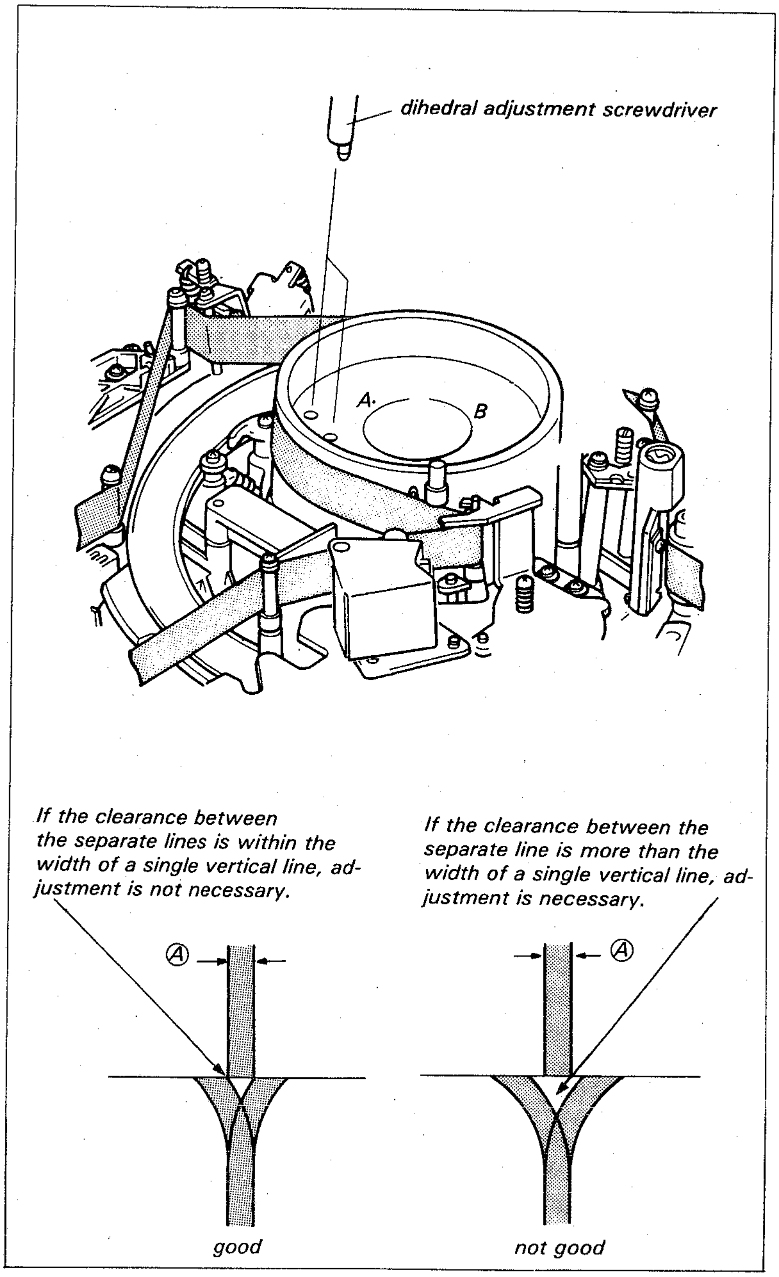
(1) Playback the monoscope signal portion of the alignment tape.

(2) Check the distortion of the monoscope signal under the switching pulse. If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary. If the clearance of the separate lines is more than the width of a vertical line, then adjustment is necessary.

Adjustment procedure:

(1) Insert an eccentric screwdriver into the adjustment hole of the white lead and perform the dihedral adjustment.

(2) Play back the monoscope signal portion. If the distortion has become worse, insert an eccentric screwdriver in the other adjustment hole and perform the dihedral adjustment.



If the clearance between the separate lines is within the width of a single vertical line, adjustment is not necessary.

If the clearance between the separate line is more than the width of a single vertical line, adjustment is necessary.

SECTION 8

SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- DC Voltmeter.
- Blank Tape.

8-1. TAPE SENSOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the cassette tape. • STOP mode	TP4/SY-141(J-1) 6.0±0.2Vdc	⊘RV1/SY-141(J-1)

8-2. REEL MOTOR STILL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect the DC volt meter to the reel motor terminal(orange)and the chassis of the reel chassis block. • Set to the PLAY-PAUSE mode without the cassette tape.	0.4±0.02Vdc	⊘RV4/SY-141(K-1) (Adjust after the reel stops.)

NOTE : Refer to Sec. 6-2 and 6-3 for the adjustment of RV2 and RV3/SY-141.

SECTION 9

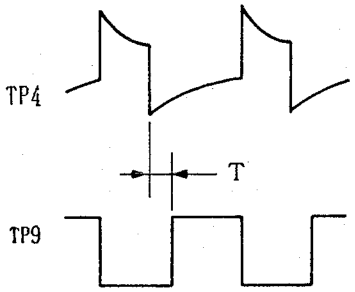
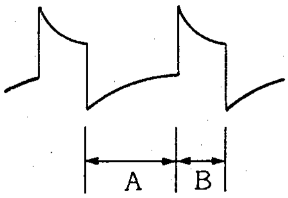
SERVO SYSTEM ALIGNMENT

[Equipment Required]

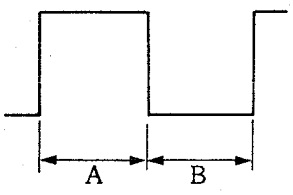
- Dual Trace Oscilloscope.
- Video Monitor
- Blank Tape : KSP-60
- Alignment Tape : RR2-1SD(Part No. 8-960-037-02)-SP tape-
- Alignment Tape : RR5-1SD(Part No. 8-960-037-80)-SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	———	OFF	———
3	Gated sweep(B/W)	1kHz, 0dB		———
3	Gated sweep(color)	10kHz, -10dB		———
3	Pulse & Bar(color)	1kHz, -20dB		———
		40Hz, -20dB		———
		7kHz, -20dB		———
		10kHz, -20dB		———
		15kHz, -20dB		———
2	Pulse & Bar(B/W)	1kHz, -20dB	ON	———
		15kHz, -20dB		———
2	Monoscope(color)	———	OFF	———
2	Pseudo color bars	———		TIME CODE

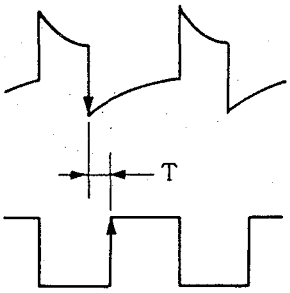
9-6. TRACKING CONTROL MULTI AND CTL POLARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • Play back the color-bar segment of the alignment tape RR5-1SD.	TP4/SV-112(L-6) TP9/SV-112(L-5) Step 1  $T=0\pm100\mu\text{sec}$ (Take reading at the center of jitter.) Step 2  A>B	⊘RV406/SV-112(G-7) TRIG : TP9/SV-112(L-5)

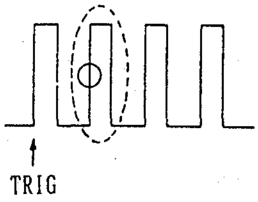
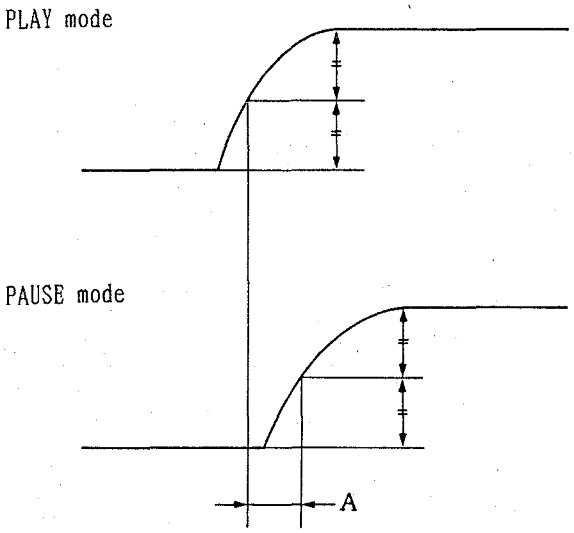
9-7. DRUM FREE SPEED ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP15/SV-112(E-7)  A=B±5%	⊘RV402/SV-112(N-6) TRIG : INT

9-8. INSTANT START ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • Play back the color-bar segment of the alignment tape RR5-1SD. • SEARCH mode • Turn the SEARCH dial to the FWD×8 position. (Refer to the Sec. 9-2 CAPSTAN 1/30 SPEED ADJUSTMENT.) • After the adjustment is completed, remove the shorting clip on the SY-141 board.	TP4/SV-112 (L-6) TP9/SV-112 (L-5)  T = 0 ± 1 msec (Take reading at the center of jitter.)	⊘RV102/SV-112 (H-7) TRIG : TP9/SV-112 (L-5)

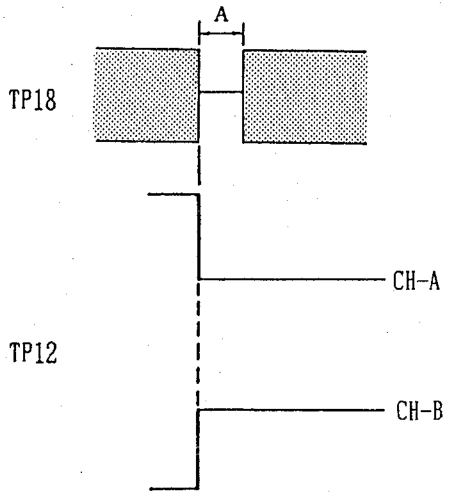
9-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • PLAY and PAUSE modes	TP8/SV-112 (M-6)  NOTE : Magnify the second wave.  A = 0 ±0.1 μsec	⊘RV2/SV-112 (G-7) (If it is difficult to catch the wave, adjust at TRACKING.) TRIG : INT

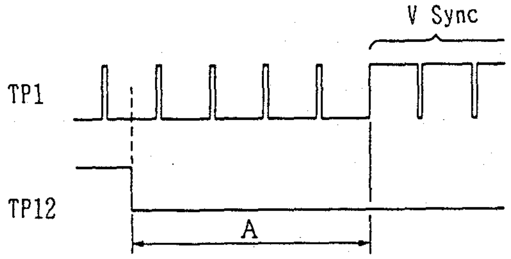
9-10. DRUM AFC TRANSIENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • PLAY and PAUSE modes	TP17/SV-112(D-7) difference between PLAY mode and PAUSE mode 0 ±0.1Vdc [Reference Procedure] ① When PAUSE mode, set the wave of TP17 to the center position of oscilloscope by DC. ② Adjust RV1 so as to set to the same position of PAUSE mode in five seconds when PLAY mode.	⊘RV1/SV-112(F-7) TRIG : INT

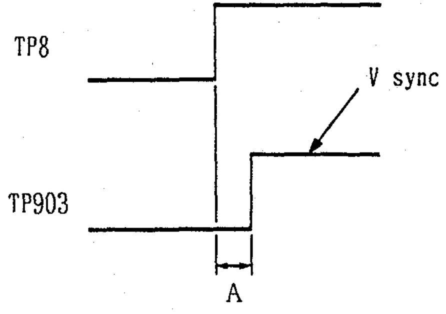
9-11. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP5/SV-112(M-7), TP8/SV-112(M-6) and GND with shorting clips. • Play back the alignment tape RR2-1SD. • Adjust the TRACKING volume so that the RF output wave can be maximum. Step 2. • Change the trigger of oscilloscope to (+) and (−). • After the adjustment is completed, remove the shorting clips.	TP18/DM-69(C-8) TP12/SV-112(C-7)  A≦10μsec	CH-A : ⊘RV405/SV-112(J-7) CH-B : ⊘RV404/SV-112(M-6) TRIG : TP12/SV-112(C-1)

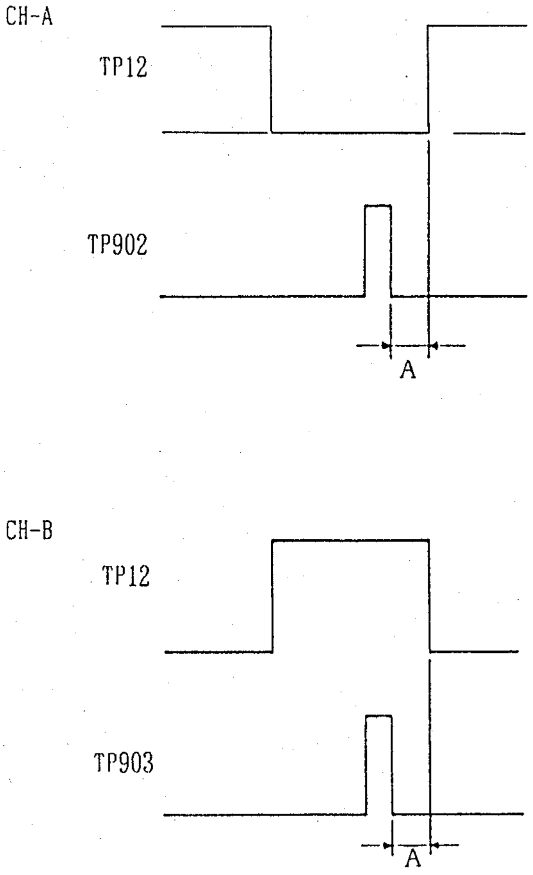
9-12. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
・VIDEO IN connector: color-bar ・INPUT SELECT SW: LINE ・Insert the KSP-60 tape. ・Short between TP8(M-6), TP5(M-7) and E3(N-7)/SV-112 with shortig clips. ・REC mode ・After the adjustment is completed, remove the shorting clips.	TP1/SV-112(N-5) TP12/SV-112(C-7)  A=2.25±0.2H ・Change to the trigger(−) side of oscilloscope, and then confirm to meet the specification.	⊘RV402/SV-112(N-7) TRIG : TP12/SV-112(C-7)

9-13. REC VD ADJUSTMENT

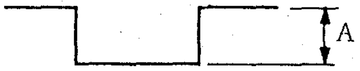
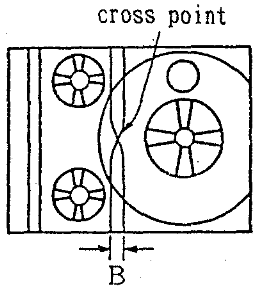
machine conditions for adjustment	specifications	adjustments
・VIDEO IN connector : color-bar ・INPUT SELECT SW : LINE ・Insert the KSP-60 tape. ・REC mode	TP8/SV-112(M-6) TP903/SV-112(N-5)  A = 0 ±5μsec (Take reading at the center of jitter.)	⊘RV900/SV-112(N-6)

9-14. ROTARY ERASE MUTE PULSE ADJUSTMENT

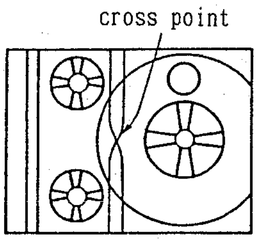
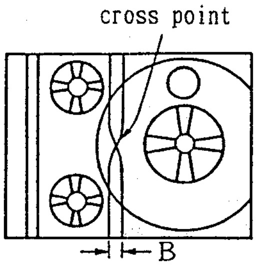
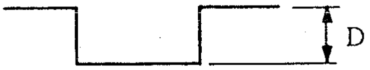
machine conditions for adjustment	specifications	adjustments
• Play back the pseudo color-bar segment of the alingment tape RR5-1SD.	CH-1 : TP12/SV-112(C-7) CH-2 : TP902/SV-112(E-1), CH-A TP903/SV-112(N-5), CH-B  A=2.3±0.05msec	CH-A : ⊘RV854/SV-112(F-2) CH-B : ⊘RV853/SV-112(F-2) TRIG : CH-1

9-15. PICTURE SPLITTING COMPENSATOR ADJUSTMENT

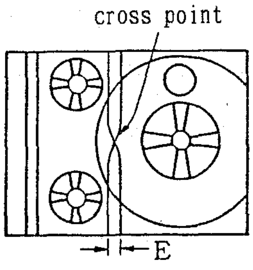
Step1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope(B/W) • Set the KCA or KCS cassette tape. • REC mode • After the adjustment is completed, record continuously.	TP904/SV-112(C-2) Oscilloscope  Minimize the A level.	⊘RV851/SV-112(C-2)
• Connect with the clip cord (with capacitor) between TP905/SV-112 (H-7) and E3/SY-112(N-7). • Play back the self recorded tape.	Monitor B  If the specification is not satisfied, confirm the cross point and perform the Step 2 and 3.	

Step 2.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope (B/W) • Play back the self recorded tape.	Monitor  1. Turn RV851/SV-112 (C-2) temporally and make the cross point large. 2. Set the cross point to the position checked in the Step 1.	⊘RV850/SV-112 (B-2)
	Monitor  Minimize B. NOTE : Check the level of TP904/SV-112 (C-2). This level is C Vp-p.	⊘RV851/SV-112 (C-2)
	TP904/SV-112 (C-2)  $D = \frac{1}{2}$ C Vp-p	⊘RV851/SV-112 (C-2)

Step3.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : monoscope(B/W) • Set the KCA or KSP cassette tape. • Play back the self recorded tape again. • After the check is completed, remove the track control delay jig (clip cord with capcitor).	Monitor  E≦0.5μsec	

• If the specification is not satisfied, readjust Step 1 and 2.

SECTION 10
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Voltmeter.
- Audio Attenuator.
- Blank Tape : KCA, KCS and KSP. (When adjusting, use KCA and KCS unless otherwise specifically indicated.)
- Alignment Tape : RR5-1SD(Part No. 8-960-037-80)-SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	———	OFF	———
3	Gated sweep(B/W)	1kHz, 0dB		———
3	Gated sweep(color)	10kHz, -10dB		———
3	Pulse & Bar(color)	1kHz, -20dB		———
		40Hz, -20dB		———
		7kHz, -20dB		———
		10kHz, -20dB		———
		15kHz, -20dB		———
2	Pulse & Bar(B/W)	1kHz, -20dB	ON	———
		15kHz, -20dB		———
2	Monoscope(color)	———	OFF	———
2	Pseudo color bars	———		TIME CODE

[NOTE]

- 0dBu=0.775Vrms

[Switch Setting]

Front Panel

- AUDIO LIMITER sw …… OFF

Do not move this switch unless otherwise specified.

10-1. EE LEVEL ADJUSTMENT

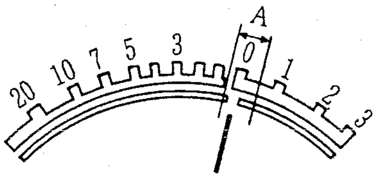
machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(E-1) GND : E11/NR-31(D-1) -10.0±0.2dBu	• CH-1 AUDIO LEVEL control • CH-2 AUDIO LEVEL control

NOTE : This position should not be moved till the Audio System Alignment is completed.

10-2. EE LINE OUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0±0.3dBm	CH-1: ⊘RV11/NR-31(A-1) CH-2: ⊘RV111/NR-31(B-1)

10-3. AUDIO LEVEL METER ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • EE mode	AUDIO LEVEL meter  A = 0 ±0.5dB	CH-1: ⊘RV51/AU-124(C-5) CH-2: ⊘RV251/AU-124(C-5)

10-4. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• MIC IN CH-1, CH-2 : 1kHz, -30dBu • EE mode • AUDIO LIMITER SW : ON	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +7.0±0.3dBm	CH-1: ⊘RV1/AU-124(D-3) CH-2: ⊘RV201/AU-124(D-3)

10-5. ALIGNMENT TAPE PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Play back the audio frequency response segment of the alignment tape RR5-1SD.</td>
<td>AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>7 kHz</td><td>0 ±0.5dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.4}_{-0.6}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.4}_{-1.0}$dB</td></tr>
</table>
</td>
<td>CH-1:
• 7kHz Level
⊘RV102/AU-124(J-5)
• 15kHz Level
⊘RV103/AU-124(J-4)
⊘RV154/AU-124(J-5)
CH-2:
• 7kHz Level
⊘RV302/AU-124(H-5)
• 15kHz Level
⊘RV303/AU-124(H-3)
⊘RV354/AU-124(H-6)</td>
</tr>
</table>

10-6. ALIGNMENT TAPE PB LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD.	CH-1 : TP13/AU-124(A-1) CH-2 : TP113/AU-124(E-1) -10.0±0.2dBu	CH-1 : ⊘RV104/AU-124(J-3) CH-2 : ⊘RV304/AU-124(J-3)

10-7. ALIGNMENT TAPE PB LINE OUT LEVEL CHECK

machine conditions for adjustment	specifications	adjustments
• Play back the audio 1kHz, 0dB segment of the alignment tape RR5-1SD.	AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω) +4.0±0.5dBm	

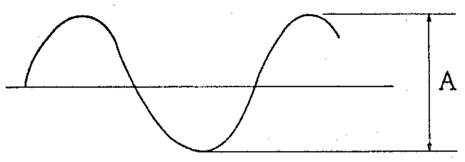
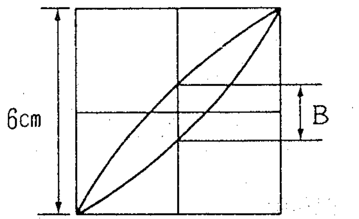
10−8. DOLBY DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• STOP mode	CH-1 : between TP314/NR-31(M-1) and TP315/NR-31 (M-1) CH-2 : between TP316/NR-31(N-1) and TP317/NR-31 (M-1) DC voltage difference= 0 ±0.1Vdc	CH-1 : ⊘RV315/NR-31(N-1) CH-2 : ⊘RV316/NR-31(M-1)

10−9. DOLBY DETECT LEVEL ADJUSTMENT

Conditions for adjustment	Specifications	Adjustments
• STOP mode	TP318/NR-31(K-1) E211/NR-31(L-1) DC voltage=3.5±0.05Vdc	⊘RV317/NR-31(K-1)

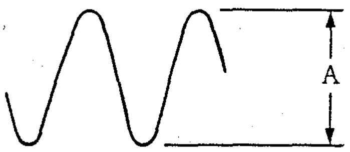
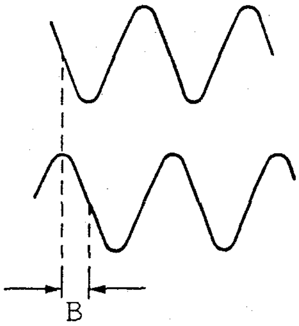
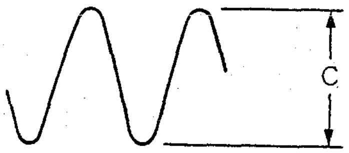
10−10. PB PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the AUDIO NR ON segment of the alignment tape RR5-1SD.	TP312/NR-31(K-1) TP313/NR-31(L-1)  $A= 0.5^{+0.1}_{-0}$ Vp-p	⊘RV313/NR-31(K-1) ⊘RV314/NR-31(M-1)
• Connect CH-1 of oscilloscope to TP311/NR-31(L-1), and CH-2 of oscilloscope to TP312/NR-31(K-1) to be displayed Lissajous' wave. Adjust the X and Y axes' amplitude. • After the adjustment is completed, connect the oscilloscope to TP311 /NR-31(L-1) and TP313/NR-31(L-1), and then perform the same check.	 Phase Difference : direction of 0° or 180° B=less than 1.5cm(15°)	⊘RV312/NR-31(L-1)

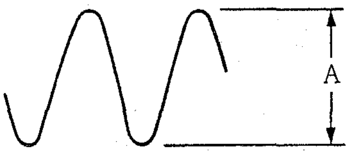
10-11. FULL ERASE OSC. LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	TP601/AU-124(A-5) GND : E601/AU-124(A-4) Level : 220±30mVrms (Check)Frequency : 71±2kHz	⊘RV604/AU-124(B-1)

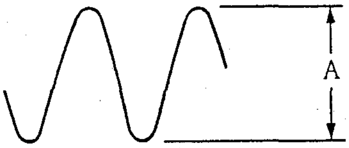
10-12. AUDIO ERASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	Step 1. CH-1 : TP701/AU-124(F-1) CH-2 : TP723/AU-124(M-1)  Maximize the A level.	CH-1 : ⊘LV701/AU-124(E-1) CH-2 : ⊘LV702/AU-124(L-1) • Adjust from the component side.
	Step 2. CH-1 : TP701 CH-2 : TP723  B = 0 ±15° (0 ±0.6μs)	
	Step 3. CH-1 : TP702/AU-124(F-2) CH-2 : TP705/AU-124(N-2)  After performing the Step 2, there is no warp on C. C = 12±1.0Vp-p	CH-1 : ⊘RV401/AU-124(F-1) CH-2 : ⊘RV402/AU-124(M-1)

10-13. BIAS TUNING ADJUSTMENT (1)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP707/AU-124(D-1) CH-2 : TP710/AU-124(K-1)  Maximize the A level.	CH-1 : ⊘LV703/AU-124(D-1) CH-2 : ⊘LV705/AU-124(K-1) • Adjust from the component side.

10-14. BIAS TUNING ADJUSTMENT (2)

machine conditions for adjustment	specifications	adjustments
• Insert the KSP-60 tape. • REC mode	CH-1 : TP709/AU-124(B-1) CH-2 : TP712/AU-124(H-1)  Maximize the A level.	CH-1 : ⊘LV704/AU-124(B-2) CH-2 : ⊘LV706/AU-124(J-2) • Adjust from the component side.

10-15. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1: TP151/AU-124(K-7) GND : E151/AU-124(H-6) CH-2: TP351/AU-124(G-6) GND : E151/AU-124(H-7) Minimize the level. (less than -10dBu)	CH-1 : ⊘LV151/AU-124(J-6) CH-2 : ⊘LV351/AU-124(J-6) • Adjust from the component side.

10-16. REC BIAS CURRENT ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) 12.0±0.5mVrms	CH-1 : ⊘RV403/AU-124(D-1) CH-2 : ⊘RV405/AU-124(K-1)

10-17. REC BIAS CURRENT ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KCA-60 tape. • REC mode	CH-1 : TP101/AU-124(J-7) GND : TP102/AU-124(J-7) CH-2 : TP301/AU-124(H-7) GND : TP302/AU-124(H-6) 9.0±0.5mVrms	CH-1 : ⊘RV404/AU-124(D-1) CH-2 : ⊘RV406/AU-124(L-1)

10-18. INSERT BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO IN : no signal • Insert the KSP-60(no signal)tape. • CH-1, CH-2 INSERT mode	CH-1 : TP103/AU-124(H-4), CH-1 INSERT mode GND : E151/AU-124(H-7) CH-2 : TP303/AU-124(G-5), CH-2 INSERT mode GND : E151/AU-124(H-7) Minimize the level. (less than -10dBu)	CH-1 : ⊘LV101/AU-124(J-6) • Adjust from the component side. CH-2 : ⊘LV301/AU-124(J-6) • Adjust from the component side.

10-19. REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, -16dBu • Insert the KSP-60 tape. • REC mode • AUDIO LIMITER SW : OFF • Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. • After the adjustment is completed, remove the shorting clip.	CH-1: TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2: TP352/AU-124(H-6) GND : E151/AU-124(H-7) -16±1dBu	CH-1 : ⊘RV152/AU-124(K-4) CH-2 : ⊘RV352/AU-124(G-3)

10-20. CH-1 REC EQ ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
Step 1. • AUDIO LINE IN CH-1 : 1kHz, -16dBu • Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. • Turn RV151/AU-124(K-4) fully clockwise. • Insert the KSP-60 tape. • REC mode	TP152/AU-124(K-6) GND : E151/AU-124(H-7) Read the value of AC voltmeter. This value is AdBu.	
Step 2. • AUDIO LINE IN CH-1 : 21kHz, -16dBu • Continue the state of Step 1. • After the adjustment is completed, remove the shorting clip.	TP152/AU-124(K-6) GND : E151/AU-124(H-7) ①Maximize the level. ②A(Step 1)+21±0.5dB	① ⊘LV152/AU-124(K-4) • Adjust from the component side. ② ⊘RV151/AU-124(K-4)

10-21. CH-2 REC EQ ADJUSTMENT (SP TAPE)

Conditions for adjustment	Specifications	Adjustments
Step 1. • AUDIO LINE IN CH-2 : 1kHz, -16dBu • Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip. • Turn RV351/AU-124(G-3) fully clockwise. • Insert the KSP-60 tape. • REC mode	TP352/AU-124(H-6) GND : E151/AU-124(G-7) Read the value of AC voltmeter. This value is AdBu.	
Step 2. • AUDIO LINE IN CH-2 : 21kHz, -16dBu • Continue the state of Step 1. • After the adjustment is completed, remove the shorting clip.	TP352/AU-124(H-6) GND : E151/AU-124(G-7) ①Maximize the level. ②A(Step 1) +21±0.5dBu	① ⊘LV352/AU-124(G-3) • Adjust from the component side. ② ⊘RV351/AU-124(G-3)

10-22. CH-1 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>Step 1.
• AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
• DOLBY SW : OFF
• Insert the KSP-60 tape.
• Record each frequency for 15 seconds.
• Rewind and play back the recorded portion.</td>
<td>AUDIO LINE OUT CH-1 (terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB (REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>7 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.8}_{-1.0}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.6}_{-1.2}$dB</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td>Step 2.</td>
<td>When 7~15kHz doesn't meet the specification:
1. AUDIO LINE IN : no signal
2. Measure the value of TP101/AU-124 (J-7) (GND : TP102/AU-124 (J-7)) by AC voltmeter.
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias current at RV403/AU-124 (D-1) with in the limits of 8~15mVrms.
NOTE: When the high frequency is lower than the specification, lower the bias voltage.
6. Perform Step 1 and then confirm that the frequency response meets the specification.

When 15kHz doesn't meet the specification:
1. Short between TP724/AU-124 (D-1) and E708/AU-124 (B-1) with a shorting clip.
2. Measure the value of TP152/AU-124 (K-6) (GND : E151/AU-124 (H-7) by AC voltmeter.
3. AUDIO LINE IN CH-1 : 15kHz, -16dBm
4. Insert the KSP-60 tape.
5. REC mode. Read the value of the AC voltmeter (A dBu).
6. Add to A for the level which doesn't meet the specification of 15kHz.
7. Readjust the value of 5. at RV151/AU-124 (K-5).
8. Perform Step 1 and confirm that the frequency response meets the specification.</td>
<td></td>
</tr>
</table>

10-23. CH-2 OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>Step 1.
• AUDIO LINE IN : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
• DOLBY SW : OFF
• Insert the KSP-60 tape.
• Record each frequency for 15 seconds.
• Rewind and play back the recorded portion.</td>
<td>AUDIO LINE OUT CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0 ±3dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>7 kHz</td><td>0 ±0.9dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+0.8}_{-1.0}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+0.6}_{-1.2}$dB</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td>Step 2.</td>
<td>When 7~15kHz doesn't meet the specification:
1. AUDIO LINE IN : no signal
2. Measure the value of TP301/AU-124(H-7) (GND : TP302/AU-124(H-6)) by AC voltmeter.
3. Insert the KSP-60 tape.
4. REC mode
5. Readjust the bias current at RV405/AU-124 (K-1) with in the limits of 8~15mVms.
NOTE: When the high frequency is lower than the specification, lower the bias voltage.
6. Perform Step 1 and then confirm that the frequency response meets the specification.

When 15kHz doesn't meet the specification:
1. Short between TP724/AU-124(D-1) and E708/AU-124(B-1) with a shorting clip.
2. Medasure the value of TP352/AU-124(H-6) (GND : E151/AU-124(H-7)) by AC voltmeter.
3. AUDIO LINE IN CH-2 : 15kHz, -16dBm
4. Insert the KSP-60 tape.
5. REC mode. Read the value of the AC voltmeter(A dBu).
6. Add to A for the level which doesn't meet the specification of 15kHz.
7. Readjust the value of the Step 5 at RV352/AU-124(G-2).
8. Perform Step 1 and confirm that the frequency response meets the specification.</td>
<td></td>
</tr>
</table>

10-24. CONVENTIONAL TAPE OVERALL FREQUENCY RESPONSE CHECK

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>・AUDIO LINE IN CH-1, CH-2 : 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-16dBu
・Insert the KCA-60 tape.
・Record each frequency for 20 seconds.
・Rewind and play back the recorded portion.</td><td>AUDIO LINE OUT CH-1, CH-2(terminated by 600Ω)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>40 Hz</td><td>0^{+3}_{-4}dB</td></tr>
<tr><td>90 Hz</td><td>0 ±2dB</td></tr>
<tr><td>1 kHz</td><td>0 dB(REF)</td></tr>
<tr><td>3 kHz</td><td>0 ±1.5dB</td></tr>
<tr><td>7 kHz</td><td>0 ±1.5dB</td></tr>
<tr><td>10 kHz</td><td>$0^{+1.4}_{-1.6}$dB</td></tr>
<tr><td>15 kHz</td><td>$0^{+1.7}_{-2.3}$dB</td></tr>
</table></td><td></td></tr>
</table>

NOTE : When not to meet the specification, perform Sec. 10-17 REC BIAS CURRBNT ADJUSTMENT(CONV TAPE).
When the high frequency is lower than the specification, lower the bias voltage.

10-25. REC LEVEL ADJUSTMENT (SP TAPE)

machine conditions for adjustment	specifications	adjustments
・AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu ・Insert the KSP-60 tape. ・REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31(A-1) CH-2 : TP113/NR-31(E-1) -10±0.3dBu Affer the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0±0.3dBm	CH-1 : ⊘RV152/AU-124(K-4) CH-2 : ⊘RV352/AU-124(G-3)

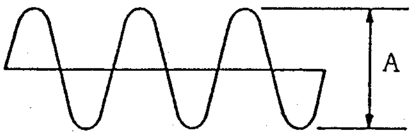
10-26. REC LEVEL ADJUSTMENT (CONV TAPE)

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : 1kHz, +4dBu • Insert the KCA-60 tape. • REC mode⇔PB mode PB mode : check REC mode : Adjustment	CH-1 : TP13/NR-31 (A-1) CH-2 : TP113/NR-31 (E-1) -10±0.5dBu Affer the adjustment is completed, confirm the AUDIO LINE OUT CH-1, CH-2 level. (terminated by 600Ω) +4.0±0.5dBm	CH-1 : ⊘RV153/AU-124 (K-4) CH-2 : ⊘RV353/AU-124 (F-3)

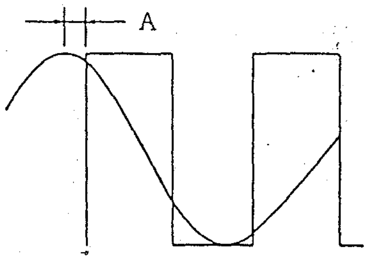
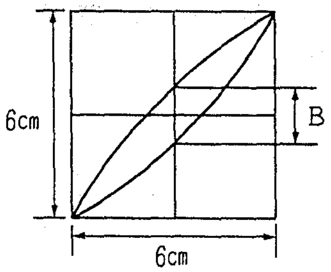
10-27. CROSSTALK CANCELER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. CH-1 Insert Adjustment • AUDIO LINE IN CH-1 : 5kHz, +4dBu • Insert the KSP-60 tape (no signal) with CTL. • CH-1 Insert mode.	AUDIO LINE OUT CH-2 (terminated by 600Ω) Minimize the level. (less than -18dBm)	⊘RV301/AU-124 (K-5)
Step 2. CH-2 Insert Adjustment • AUDIO LINE IN CH-2 : 5kHz, +4dBu • Insert the KSP-60 tape (no signal) with CTL. • CH-2 Insert mode.	AUDIO LINE OUT CH-1 (terminated by 600Ω) Minimize the level. (less than -18dBm)	⊘RV101/AU-124 (L-7)

10-28. OA PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : no signal • DOLBY SW : ON • Insert the KSP-60 tape. • REC mode	CH-1 : TP152/AU-124(K-6) GND : E151/AU-124(H-7) CH-2 : TP352/AU-124(H-6) GND : E151/AU-124(H-7) Adjust to -22±1dBu temporarily.	CH-1 : ⊘RV211/NR-31(F-1) CH-2 : ⊘RV212/NR-31(F-1)
• Record for 10 seconds. • Rewind and play back the recorded portion.	CH-1 : TP312/NR-31(K-1) GND : E211/NR-31(L-1) CH-2 : TP313/NR-31(L-1) GND : E211/NR-31(L-1)  A＝0.6±0.05V	CH-1 : ⊘RV211/NR-31(F-1) CH-2 : ⊘RV212/NR-31(F-1)

10-29. OA PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• AUDIO LINE IN CH-1, CH-2 : no signal • DOLBY SW : ON • Insert the KSP-60 tape. • REC mode	CH-1 : TP311/NR-31(L-1) GND : E211/NR-31(L-1) CH-2 : TP211/NR-31(H-1) GND : E211/NR-31(L-1)  (Adjust) A = 0 ±2.7msec temporarily.	⊘RV311/NR-31(L-1)
• Record for 10 seconds. • Rewind and play back the recorded portion • PB→Check REC→Adjustment	CH-1 : TP311/NR-31(L-1) CH-2 : TP312/NR-31(K-1)  Perform the fine tuning so as to be B≦1.5cm (15°). Adjust performing PB and REC repeatedly.	⊘RV311/NR-31(L-1) TRIG : TP311/NR-31(L-1)

SECTION 11
VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- NTSC signal generator (TEKTRONIX1410 or equivalent).
- Vectorscope.
- DC voltmeter.
- Frequency counter.
- Video sweep signal generator.
- Spectrum analyzer.
- Cassette Tape : KCA, KCS and KSP.
- Alignment Tape : RR5-1SD (part No. 8-960-037-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	——	OFF	——
3	Gated sweep (B/W)	1kHz, 0dB		——
3	Gated sweep (color)	10kHz, -10dB		——
3	Pulse & Bar (color)	1kHz, -20dB		——
		40Hz, -20dB		——
		7kHz, -20dB		——
		10kHz, -20dB		——
		15kHz, -20dB		——
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	——
		15kHz, -20dB		——
2	Monoscope (color)	——	OFF	——
2	Pseudo color bars	——		TIME CODE

RR5-3SA(Part No. 8-960-015-04)-conventional tape-

REAL TIME Counter(min)	TAPE COUNTER	VIDEO TRACK	AUDIO TRACK
00:00-04:00	000-100	Monoscope	3kHz, 0dB
04:00-09:00	100-208	Color-bar	———
09:00-14:00	208-300	R-F sweep	———
14:00-16:00	300-335	Mod. 20T pulse	1kHz, 0dB
16:00-18:00	335-367	Monoscope(color)	10kHz, -10dB
18:00-20:00	367-398	Pseudo C.B. for DOC adj.	———

RR5-4SB(part No. 8-960-015-16)-conventional tape-

TIME	VIDEO	AUDIO	TIME CODE
5	color bars	3kHz, 0dB	1kHz
5	R-F sweep	———	———
5	Monoscope	———	———
2.5	Modulated 20T pulse	1kHz, 0dB	———
2.5	R-F 8MHz	10kHz, -10dB	———

[Switch Setting]

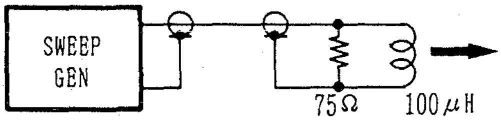
Front Panel
- VIDEO LEVEL sw··························AUTO
- INPUT SELECT sw························LINE

Connector Panel
- VIDEO IN 75Ω sw ····················ON

Do not move these switches unless otherwise specified.

11-1. PB RF FREQUENCY RESPONSE ADJUSTMENT (1)

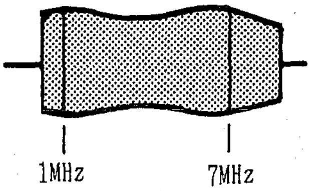
To make this adjustment, the head drum rotation is stopped without a cassette tape, and the sweep signal is L-coupled to the video head using an inductor (approximately 100μH).



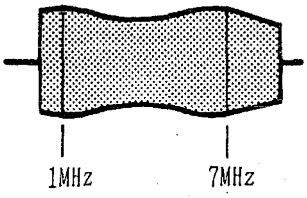
Bring an inductor near the video head.

Sweep signal band width : 1 to 10MHz

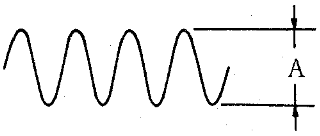
Step1. CH-A RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Short between TP8/DM-69(D-7) and GND with a shorting clip.
• Couple a sweep signal to the video head(CH-A).
• Adjust the sweep signal generator output so that the signal level in about 250mVp-p.
• After the adjustment is completed, remove the shorting clip.</td>
<td>TP7/RP-40(D-1)

<table><tr><th>1MHz</th><th>7MHz</th></tr><tr><td>100%
(reference)</td><td>100±5%</td></tr></table></td>
<td>⊘RV4/RP-40(D-2)
TRIG : Trigger output/ sweep generator</td>
</tr>
</table>

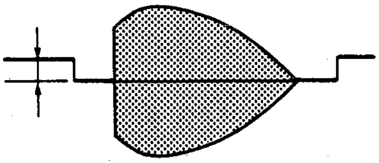
Step2. CH-B RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Short between TP8/DM-69(D-7) and GND with a shorting clip.
• Couple a sweep signal to the video head(CH-B).
• Adjust the sweep signal generator output so that the signal level is about 250mVp-p.
• After the adjustment is completed, remove the shorting clip.</td>
<td>TP10/RP-40(D-1)

<table><tr><th>1MHz</th><th>7MHz</th></tr><tr><td>100%
(reference)</td><td>100±5%</td></tr></table></td>
<td>⊘RV6/RP-40(D-1)
TRIG : Trigger output/ sweep generator</td>
</tr>
</table>

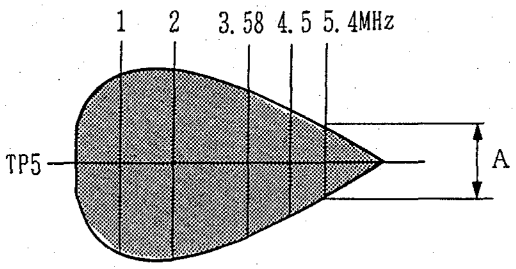
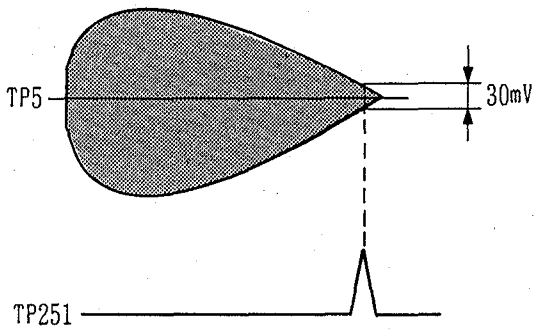
11-2. AUDIO BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Insert the tape on which only a CTL signal is recorded (Video signal is not being recorded on the tape). • AUDIO CH-1 INSERT mode.	TP501/DM-69(C-2) Minimize the bias leak A. 	⊘LV501/DM-69(C-6)

11-3. RF AMPLIFIER DC BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP5/SV-112(M-7) and GND with a shorting clip. • Play back the RF sweep segment of the alignment tape RR5-4SB. • Fully turn RV1/DM-69(B-7) counter-clockwise. • After the adjustment is completed, remove the shorting clip.	TP17/DM-69(C-8)  Equalize the dc level in both channels.	⊘RV1/DM-69(B-7) TRIG : TP4/DM-69(D-7)

11-4. DROPOUT COMPENSATION SENSITIVITY ADJUSTMENT

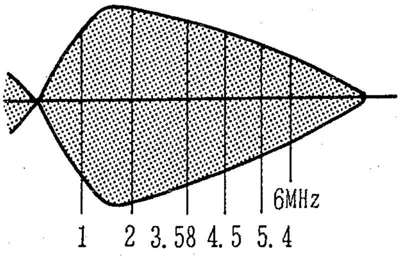
machine conditions for adjustment	specifications	adjustments
• Play back the RF sweep segment of the alignment tape RR5-4SB.	CH-1 : TP5/DM-69 (E-9) CH-2 : TP251/DM-69 (E-7) Step 1.  1 2 3.58 4.5 5.4MHz TP5 A A = 300mV Step 2.  TP5 30mV TP251 Appear DOC pulse at 30mV level.	Step 1. ⊘RV5/DM-69 (A-8) Step 2. ⊘RV251/DM-69 (E-8)

11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT (2)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>

- Play back the RF sweep segment of the alignment tape RR5-4SB.
- Maximize the RF level at TP3/DM-69 using a TRACKING control.
- After the adjustment is completed, return the TRACKING control to the center click position.

</td>
<td>
TP3/DM-69(C-9)



<table>
<tr><th>2MHz</th><th>3.58MHz</th><th>4.5MHz</th><th>5.4MHz</th><th>6MHz</th></tr>
<tr><td>100%
(reference)</td><td>80
±10%</td><td>75
±10%</td><td>60
±5%</td><td>55
±10%</td></tr>
</table>
</td>
<td>CH-A : ⊘RV3/DM-69(C-8)
CH-B : ⊘RV2/DM-69(C-7)
TRIG : TP4/DM-69(D-7)</td>
</tr>
</table>

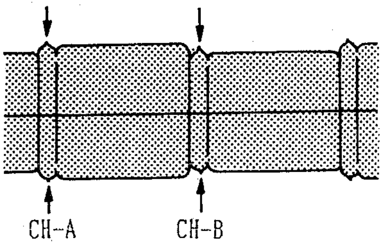
After this adjustment is completed, confirm the section 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the section 11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

11-6. Y RF OUTPUT BALANCE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>

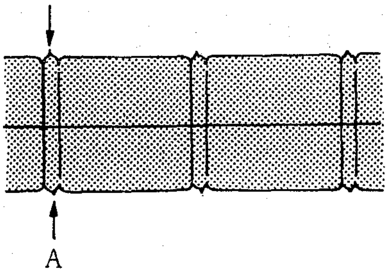
- Play back the color-bar segment of the alignment tape RR5-1SD.
- Maximize the RF level at TP5/DM-69 using a TRACKING control.
- After the adjustment is completed, return the TRACKING control to the center click position.

</td>
<td>
TP5/DM-69(E-9)

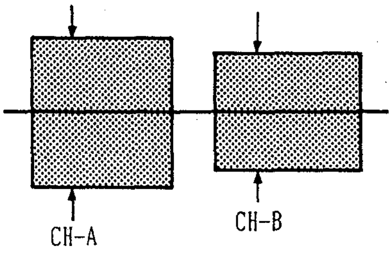


Sync tip level in CH-A
=Sync tip level in CH-B±5%
</td>
<td>⊘RV6/DM-69(C-8)
TRIG : TP4/DM-69(D-7)</td>
</tr>
</table>

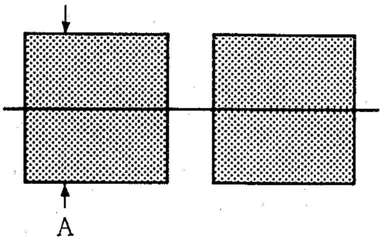
11-7. Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP5/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP5/DM-69(E-9)  A=0.35±0.04V	⊘RV5/DM-69(A-8) TRIG : TP4/DM-69(D-7)

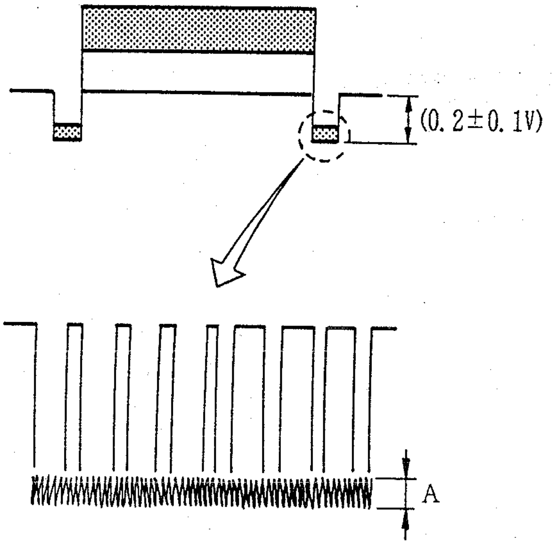
11-8. PB CHROMA RF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP501/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-69(C-2)  CH-A level=CH-B level (Difference between CH-A and B=within 0.015V)	⊘RV4/DM-69(C-8) TRIG : TP4/DM-69(D-7)

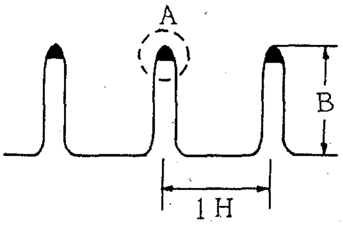
11-9. PB CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the RF level at TP501/DM-69 using a TRACKING control. • After the adjustment is completed, return the TRACKING control to the center click position.	TP501/DM-69 (C-2)  A=0.2±0.01V	⊘RV501/DM-69 (C-5) TRIG : TP4/DM-69 (D-7)

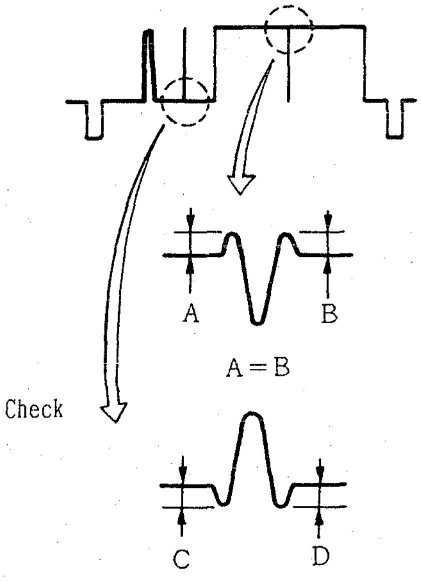
11-10. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP14/DM-69 (J-7)  Minimize the A level (A≦80mV)	⊘RV8/DM-69 (E-9) TRIG : TP4/DM-69 (D-7)

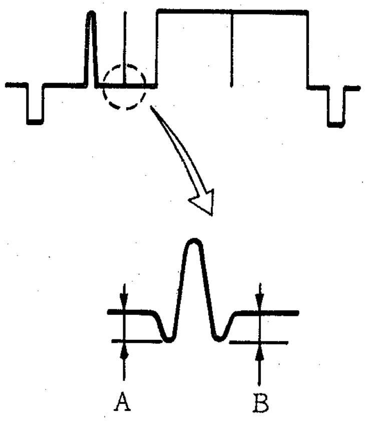
11-11. SP MODE DETECTION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP301/DM-69(D-4) Specification 1  Maximize the A portion Specification 2 B=2.3±0.1V	⊘LV301/DM-69(D-4) ⊘RV301/DM-69(D-5)
• Play back the color-bar segment of the alignment tape RR5-1SD.	Confirm that the SP lamp on the Front panel lights.	

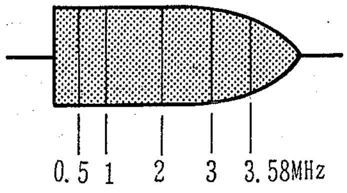
11-12. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar(B/W) segment of the alignment tape RR5-1SD.	TP15/DM-69(J-2)  A=B 0≦C≦D	⊘RV9/DM-69(J-9)

11-13. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (CONVENTIONAL MODE)

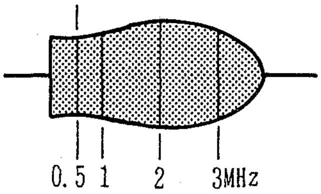
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the MOD 20T signal on alignment tape RR5-4SB.</td><td>TP15/DM-69(J-2)

A=B</td><td>⊘RV10/DM-69(K-9)</td></tr>
</table>

11-14. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (SP MODE)

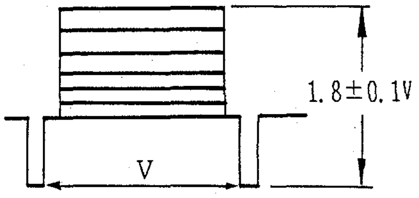
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the gated sweep (B/W) segment of the alignment tape RR5-1SD.</td><td>TP15/DM-69(J-2)

<table><tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th></tr><tr><td>100%
(reference)</td><td>100
±5%</td><td>100
±10%</td><td>$92^{+8}_{-2}\%$</td></tr></table>
Read the 2MHz and 3MHz levels at the moire peak.</td><td>⊘CV1/DM-69(J-9)
TRIG : TP4/DM-69(D-7)</td></tr>
</table>

NOTE : If the specification is not satisfied, adjust the level at 3MHz using RV2/DM-69(C-7) and RV3/DM-69(C-8), then, perform the sec. 11-5. PB RF FREQUENCY RESPONSE ADJUSTMENT(2), the sec. 11-6. Y RF OUTPUT BALANCE ADJUSTMENT and the sec. 11-7. Y RF OUTPUT LEVEL ADJUSTMENT.

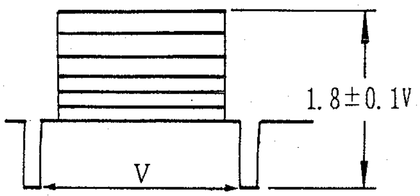
11-15. DUB Y PB FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL MODE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• VIDEO IN connector :
Gated sweep(color)
• Insert a KCA or KCS cassette tape.
• Play back the self recorded portion.</td><td>TP15/DM-69(J-2)
 <table><tr><td>0.5MHz</td><td>2MHz</td></tr><tr><td>100%
(reference)</td><td>110
±6%</td></tr></table>Read the 2MHz level at the moire peak.</td><td>⊘CV2/DM-69(K-8)
TRIG : TP4/DM-69(D-7)</td></tr>
</table>

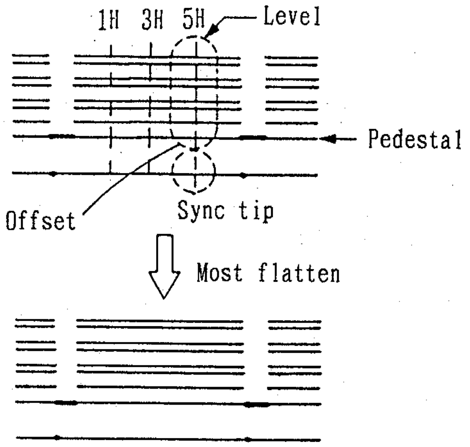
11-16. Y OUTPUT LEVEL ADJUSTMENT (SP MODE)

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr><td>• Play back the color-bar segment of the alignment tape RR5-1SD.</td><td>TP15/DM-69(J-2)
 NOTE : When noise appears at TP15/DM-69(J-2), measure the level in the center of noise.</td><td>⊘RV17/DM-69(F-8)
TRIG : TP4/DM-69(D-7)</td></tr>
</table>

11-17. Y OUTPUT LEVEL ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-4SB.	TP15/DM-69(J-2)  NOTE : When noise appears at TP15/DM-69(J-2), measure the level in the center of noise.	⊘RV11/DM-69(K-9) TRIG : TP4/DM-69(D-7)

11-18. DOC OFFSET/LEVEL ADJUSTMENT

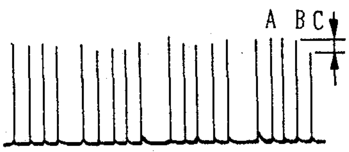
machine conditions for adjustment	specifications	adjustments
• Play back the pseudo color-bar segment of the alignment tape RR5-3SA	TP15/DM-69(J-2)  1H 3H 5H Level Pedestal Offset Sync tip Most flatten	Offset adj. ⊘RV13/DM-69(H-5) Level adj. ⊘RV201/DM-69(K-4) TRIG : TP4/DM-69(D-7)

After this adjustment is completed, confirm the sec. 11-12. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT (SP MODE) and the sec. 11-13. DEMODULATOR Y PHASE EQUALIZING ADJUSTMENT(CONVENTIONAL MODE).

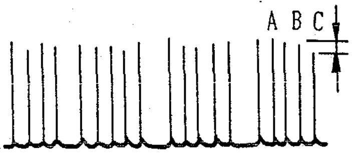
11-19. SP/CONV DC SHIFT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play dack the color-bar segment of the alignment tape RR5-1SD. • DC voltmeter	TP13/DM-69(H-8) Voltage=A Vdc	
Step 2. • Play back the color-bar segment of the alignment tape RR5-4SB.	Voltage B=A±0.01Vdc	RV16/DM-69(K-8)

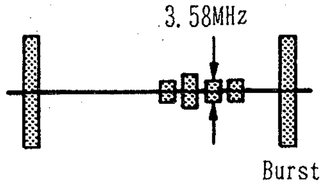
11-20. 1H-DELAY CCD LINEARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : 5 STEP signal • EE mode • WAVE FORM MONITOR : DIFF'D STEP mode Use a probe at an attenuation factor of 1 to 1.	TP402/MD-59(B-4)  Minimize the level difference. (less than 2%) A=B=C	RV401/MD-59(C-7)

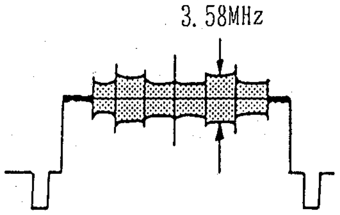
11-21. 2H-DELAY CCD LINEARITY ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : 5 STEP signal • EE mode • WAVE FORM MONITOR : DIFF'D STEP mode Use a probe at an attenuation factor of 1 to 1.	TP403/MD-59(A-6)  Minimize the level difference. (less than 1%) A=B=C	RV404/MD-59(B-6)

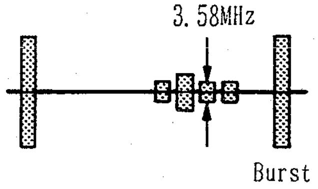
11-22. 1H-DELAY CCD LEVEL/PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Solder SL1/MD-59(A-4). • Open SL2/MD-59(A-4). • VIDEO IN connector : Multiburst • EE mode • After the adjustment is completed, return SL1 and SL2 to the former positions.	TP405/MD-59(B-3)  Minimize the level at 3.58MHz.	⊘RV402/MD-59(B-5) ⊘RV403/MD-59(B-4) • Adjust RV402 and RV403 alternately. TRIG : TP5/MD-59(F-5)

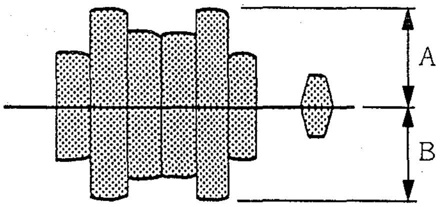
11-23. CCD CLOCK PHASE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Multiburst • EE mode • Turn RV405/MD-59 from the full left position and adjust so that the level is maximized.	TP403/MD-59(A-6)  Maximize the 3.58MHz level.	⊘RV405/MD-59(C-6)

11-24. 2H-DELAY CCD LEVEL/PHASE ADJUSTMENT

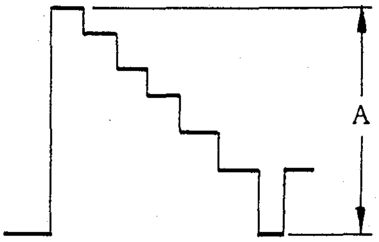
machine conditions for adjustment	specifications	adjustments
• Open SL1/MD-59(A-4). • Solder SL2/MD-59(A-4). • VIDEO IN connector : Multiburst • EE mode • After the adjustment is completed, return SL1 and SL2 to the former positions.	TP405/MD-59(C-3)  Minimize the level at 3.58MHz.	⊘RV406/MD-59(A-5) ⊘RV407/MD-59(A-5) TRIG : TP5/MD-59(F-5)

11−25. REC CHROMA BALANCE ADJUSTMENT

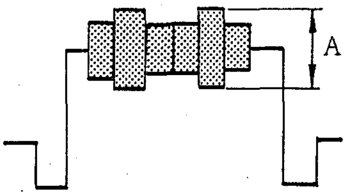
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Fully turn RV408/MD-59 (A-2) clockwise temporarily.	TP405/MD-59 (C-3)  A＝B	⊘RV408/MD-59 (A-2)

11−26. CHROMA CANCEL ADJUSTMENT

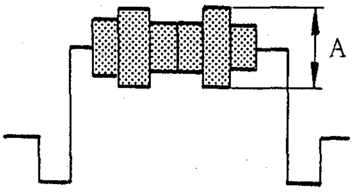
Step1.

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	TP410/MD-59 (E-2)  A＝1.8±0.05V	⊘RV412/MD-59 (D-5)

Step2.

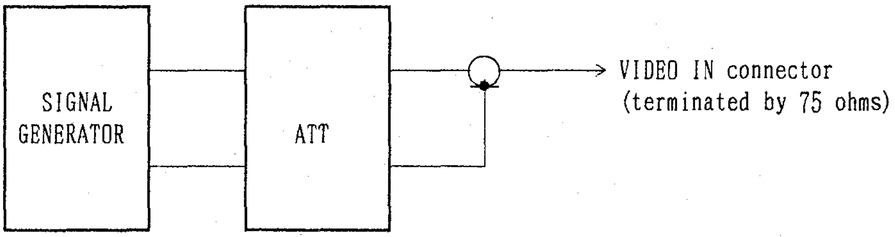
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar (Y OFF) • EE mode	TP409/MD-59 (E-4)  Minimize the A level.	⊘RV411/MD-59 (E-5) ⊘RV413/MD-59 (E-5)

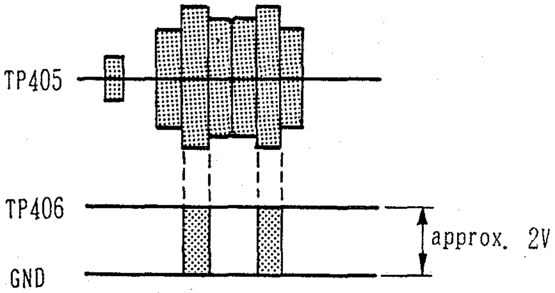
Step 3.

machine conditions for adjustment	specifications	adjustments
• Short between TP407/MD-59(E-4) and TP408/MD-59(E-4) with a shorting clip. • VIDEO IN connector : Color-bar(Y OFF) • EE mode	TP410/MD-59(E-2)  A ≦ 20mV Even thougn the shorting clip is removed, this level may be satisfied.	⊘RV410/MD-59(C-4) ⊘RV414/MD-59(E-3)

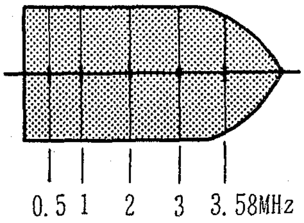
If the specification of Step 3. is not satisfied, readjust Step 2.

Step 4.


SIGNAL GENERATOR
ATT
VIDEO IN connector
(terminated by 75 ohms)

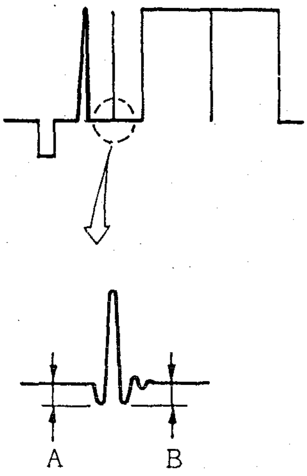
machine conditions for adjustment	specifications	adjustments
• Signal generator output : Color-bar • Set the attenuator to 20dB. • EE mode	CH-1 : TP405/MD-59(C-3) CH-2 : TP406/MD-59(D-3)  TP405 TP406 GND approx. 2V With -20dB input : TP406 turn to "H" (approx. 2V) With -16dB input : The pulse is out at TP406.	⊘RV409/MD-59(C-3)

11-27. REC Y FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• VIDEO IN connector : Video sweep
• EE mode</td>
<td>TP410/MD-59(E-2)


<table>
<tr><th>0.5MHz</th><th>3MHz</th></tr>
<tr><td>100%
(reference)</td><td>100%</td></tr>
</table>
</td>
<td>CV401/MD-59(E-2)
TRIG : Trigger output/
sweep generator</td>
</tr>
</table>

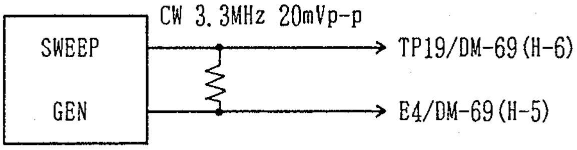
11-28. Y PHASE EQUALIZING ADJUSTMENT

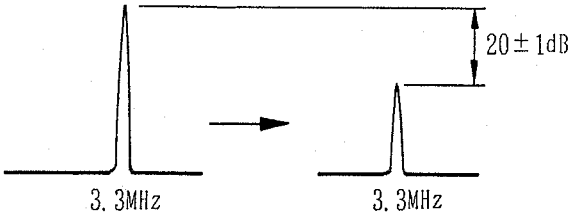
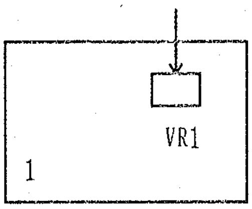
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• VIDEO IN connentor : Pulse & Bar
• EE mode</td>
<td>TP4/MD-59(G-5)


A=B</td>
<td>RV12/MD-59(H-1)
TRIG : TP509/DM-70(E-2)</td>
</tr>
</table>

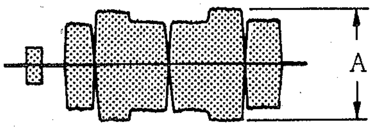
11-29. Y NOISE CANCELLER ADJUSTMENT

[Connection]



machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL2/DM-69 (H-6). • Short between TP20/DM-69(G-5) and E3/DM-69(H-4) with a shorting clip. • INPUT SELECT SW/FRONT PANEL : DUB • Record this level. • Remove the shorting clip of TP20/DM-69 and adjust. • After the adjustment is completed, resolder the solder bridge.	TP401/DM-69(F-2) E401/DM-69(E-2) Spectrum analyzer  Lower by 20±1dB than the recorded level.	⊘VR1(IC12)/DM-69(F-6) 

11-30. PB CHROMA RF LEVEL READJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Play back the color-bar segment of the alignment tape RR5-1SD. • TRACKING : Maximize the RF level of TP501/DM-69.	TP501/DM-69(C-2)  A=0.2±0.01V	⊘RV501/DM-69(C-5) TRIG : TP15/DM-69(J-2)
Step 2. • Play back the color-bar segment of the alignment tape RR5-4SB. • TRACKING : Maximize the RF level of TP501/DM-69.	A=0.2±0.05V	
Step 3. • Return the TRACKING control to the center click position. • VIDEO IN connector : color-bar • EE mode	A=0.2±0.1V	

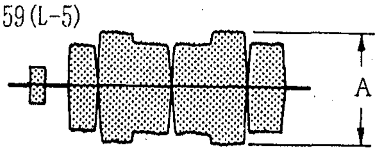
11-31. APC DC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• INPUT SELECT sw : DUB • EE mode • DC Voltmeter	TP205/MD-59(M-3) 8.0±0.1Vdc	⊘RV203/MD-59(L-4)

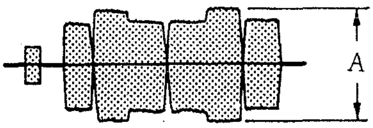
11-32. 3.58MHz OSC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Frequency counter	TP701/MD-59(L-2) 3579.545±0.005kHz	⊘CV701/MD-59(L-1)

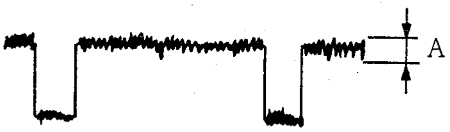
11-33. REC ACC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP212/MD-59(L-5)  A=0.8±0.02V	⊘RV202/MD-59(L-4)

11-34. REC CHROMA RF LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP201/MD-59(M-7)  A=0.9±0.02V	⊘RV201/MD-59(M-3)

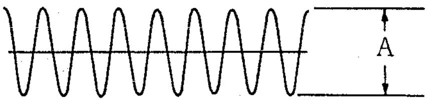
11-35. REC APC ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • EE mode	TP205/MD-59(M-3)  Minimize the A level.	⊘T201/MD-59(L-2)

11-36. VCO DC LEVEL ADJUSTMENT

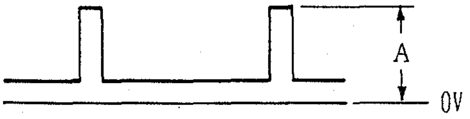
machine conditions for adjustment	specifications	adjustments
• S501/DM-70(G-3) : OFF • Play back the color-bar segment of the alignment tape RR5-1SD. • DC Voltmeter • After the adjustment is completed, turn S501/DM-70 on.	TP514/DM-70(G-4) 8.1±0.1Vdc	⊘RV505/DM-70(E-2)

11-37. 4.27MHz LEVEL ADJUSTMENT

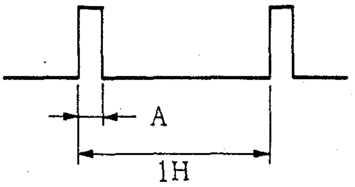
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP513/DM-70(E-4)  A=0.65±0.03V	⊘RV517/DM-70(G-4)

11-38. PB ACC BURST GATE ADJUSTMENT

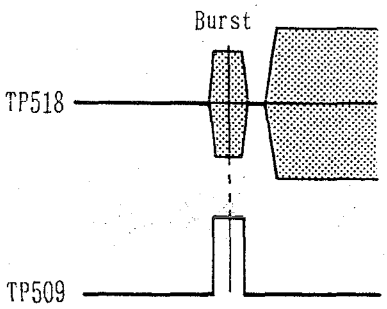
Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-70(E-2)  A=4.2±0.1V	⊘RV511/DM-70(E-1)

Step2. Burst flag width adjustment

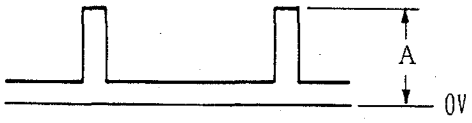
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP509/DM-70(E-2)  A=2.8±0.1μs	⊘RV509/DM-70(E-1)

Step3. Burst flag phase adjustment

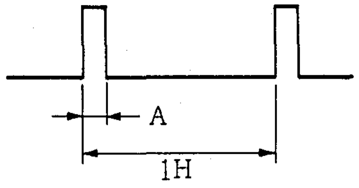
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	CH-1 : TP518/DM-70(D-7) CH-2 : TP509/DM-70(E-2)  Align the center of both waveforms.	⊘RV508/DM-70(E-1) TRIG : CH-2

11-39. PB APC BURST GATE ADJUSTMENT

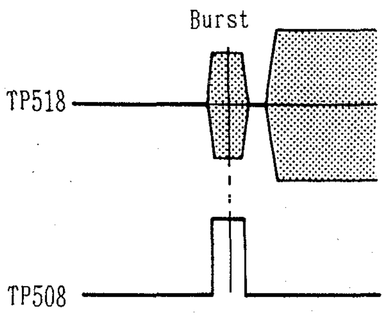
Step1. Burst flag level adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-70 (D-2)  A = 3.8±0.2V	⊘RV510/DM-70 (D-1)

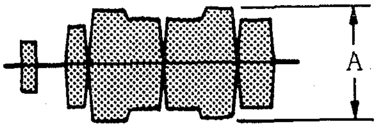
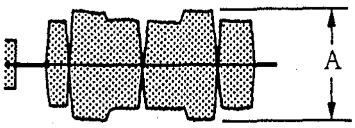
Step2. Burst flag width adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP508/DM-70 (D-2)  A = 2.5±0.1μs	⊘RV507/DM-70 (D-2)

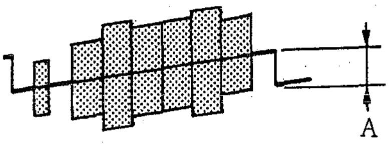
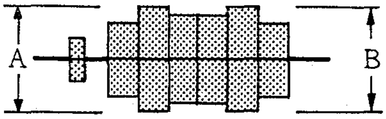
Step3. Burst flag phase adjustment

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	CH-1 : TP518/DM-70 (D-7) CH-2 : TP508/DM-70 (D-2)  Align the center of both waveforms.	⊘RV506/DM-70 (D-2) TRIG : CH-2

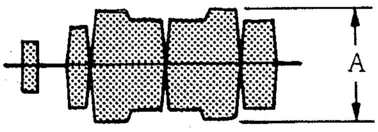
11-40. PB ACC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  A=0.8±0.04V	⊘RV518/DM-70 (G-7) TRIG : TP509/DM-70 (E-2)
• VIDEO IN connector : color-bar • EE mode	TP515/DM-70 (G-8)  A=0.8±0.04V	⊘T502/DM-70 (F-5) TRIG : TP509/DM-70 (E-2)

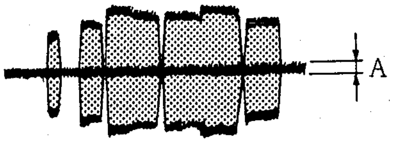
11-41. DG COMPENSATION TENTATIVE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  The dc level is equal. (confirm that A=0.)	TRIG : TP509/DM-70 (E-2)
	TP515/DM-70 (G-8)  A=B	⊘RV513/DM-70 (C-6) TRIG : TP509/DM-70 (E-2)

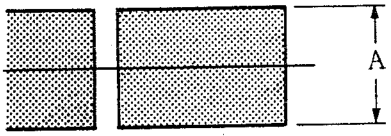
11-42. PB ACC LEVEL READJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70 (G-8)  A = 0.8 ± 0.05V	⊘RV518/DM-70 (G-7) TRIG : TP509/DM-70 (E-2)

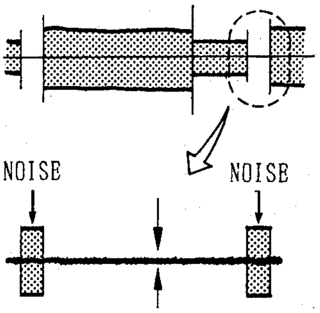
11-43. CONVERTER BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Wait for more than five minutes after power is turned on.	TP518/DM-70 (D-7)  A ≦ 35mV Minimize the carrier leak.	⊘RV519/DM-70 (E-7) TRIG : TP509/DM-70 (E-2)

11-44. DUB CHROMA LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP504/DM-70 (G-9)  A = 0.96 ± 0.05V	⊘RV504/DM-70 (F-9) TRIG : TP509/DM-70 (E-2)

11-45. CHROMA NOISE CANCELLER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP525/DM-70(H-2) and E502/DM-70(F-1) with a shorting clip. • Play back the color-bar segment of the alignment tape RR5-1SD. • After the adjustment is completed, remove the shorting clip.	TP524/DM-70(G-2)  Minimize this amplitude.	⊘RV523/DM-70(G-1) TRIG : TP509/DM-70(E-2)

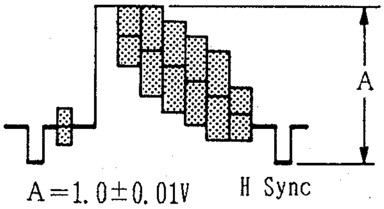
11-46. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KSP cassette tape. • EE mode	TP10/MD-59(G-3) $5.0^{+0}_{-0.05}$MHz	⊘RV3/MD-59(H-4)

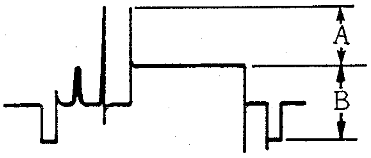
11-47. SYNC TIP CARRIER FREQUENCY ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • Insert a KCA or KCS cassette tape. • EE mode	TP10/MD-59(G-3) 3.8±0.05MHz	⊘RV4/MD-59(G-3)

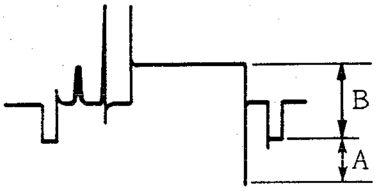
11-48. FM DEVIATION ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode	VIDEO OUT connector (terminated by 75 ohms)  A=1.0±0.01V	⊘RV1/MD-59(H-7)

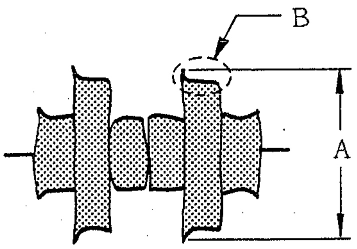
11-49. WHITE CLIP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
Step 1. • Short between TP8/MD-59(G-4) and TP9/MD-59(G-4) with a shorting clip. • VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • EE mode	TP13/MD-59(H-5) 	SP mode adj. ⊘RV6/MD-59(H-3) Conventional mode adj. ⊘RV5/MD-59(J-4)
Step 2. • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the shorting clip.	With level B as 100% reference, $A=75^{+0}_{-2}\%$ (SP mode) $A=65\pm2\%$ (Conventional mode) (Read the level at the center of noise.)	TRIG : TP5/MD-59(F-5)

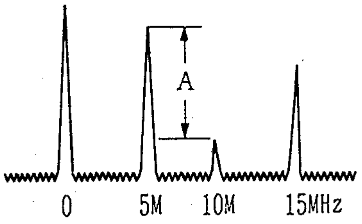
11-50. DARK CLIP ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Short between TP8/MD-59(G-4) and TP9/MD-59(G-4) with a shorting clip. • VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • EE mode • After the adjustment is completed, remove the shorting clip.	TP13/MD-59(H-5)  With level B as 100% reference, $A=65^{+0}_{-2}\%$ (SP mode) (Read the level at the center of noise.)	⊘RV7/MD-59(J-4) TRIG : TP5/MD-59(F-5)

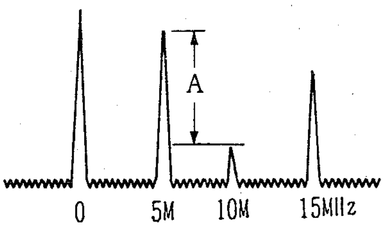
11-51. SUBCARRIER TRAP ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Connect between TP8/MD-59(G-4) and TP9/MD-59(G-4) with 1kohm resistor. • VIDEO IN Connector : Multiburst • Insert a KCA or KCS cassette tape. • EE mode. • After the adjustment is completed, remove the resistor.	TP11/MD-59(H-4)  Minimize the A level and make flattest B.	⊘LV1/MD-59(J-4)

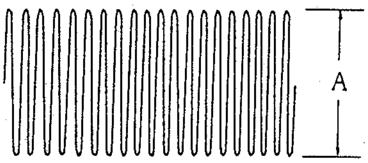
11-52. MODULATOR BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP10/MD-59(G-3) Spectrum analyzer  Minimize the level at 10MHz (A≧50dB).	⊘RV2/MD-59(H-4)

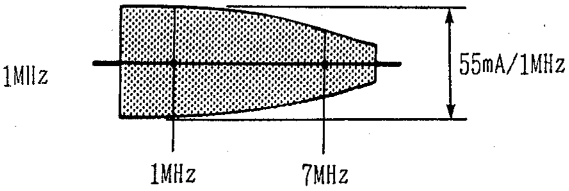
11-53. REC HF BALANCE ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : No signal • INPUT SELECT sw : DUB • EJECT mode	TP15/MD-59(K-5) Spectrum analyzer  Minimize the level at 10MHz (A≧45dB).	⊘RV8/MD-59(J-2)

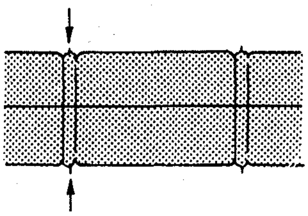
11-54. ROTARY ERASE CURRENT ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • VIDEO INSERT mode	TP102/RP-40(A-1) : CH-A TP103/RP-40(A-1) : CH-B GND : E101/RP-40(A-1)  A=1.0±0.02V	CH-A : ⊘RV102/RP-40(A-2) CH-B : ⊘RV101/RP-40(A-2)

11-55. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT

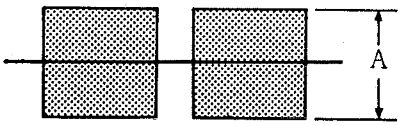
<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>• Desolder the bridge between SL1/RP-40(D-2) and SL2/RP-40(D-2).
• Short between TP1(B-2)and GND: and TP3(C-2) and E2(C-2) on the RP-40 board with shoting clips.
• Connect between TP5(D-1) and TP6 (D-1):and TP8(D-1) and TP9(D-1) on the RP-40 board with shorting clips.
• Supply an RF sweep signal to TP3/RP-40.
• Insert a KSP cassette tape.
• VIDEO IN connector : Color-bar
• REC mode
• After the adjustment is completed, remove the shorting clips and resolder the solder bridges.</td>
<td>between TP5/RP-40(D-1)and TP6/RP-40(D-1) : CH-A
between TP8/RP-40(D-1)and TP9/RP-40(D-1) : CH-B

<table>
<tr><th>1MHz</th><th>3MHz</th><th>4.5MHz</th><th>7MHz</th><th>8MHz</th></tr>
<tr><td>100%
(reference)</td><td>88
±5%</td><td>78
±5%</td><td>60
±10%</td><td>55
±5%</td></tr>
</table>
• Use a current probe for observirg the current.</td>
<td>CH-A :
⊘RV3/RP-40(C-2)
CH-B :
⊘RV5/RP-40(C-1)
TRIG : VD/SWEEP GEN</td>
</tr>
</table>

11-56. Y REC CURRENT ADJUSTMENT

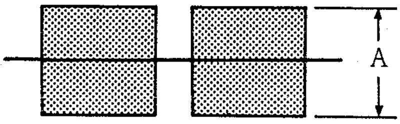
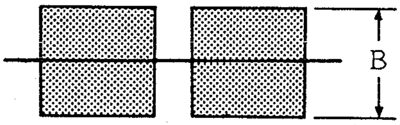
machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40 (D-2). • Connect between TP5/RP-40 and TP6/RP-40 with a shorting clip. • Short between TP1/RP-40(B-2) and GND with a shorting clip. • VIDEO IN connector : Color-bar SP mode Adjustment • Insert a KSP cassette tape. • REC mode Conventional Mode Adjustment • Insert a KCA or KCS cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP-40(D-1) and TP6/RP-40(D-1)  A (at sync) SP mode adjustment : $A=62\pm5$mA Conventionl mode adjustment : $A=70^{+8}_{-5}$mA • Use a current probe for observing the current.	SP mode adj. ⊘RV8/RP-40(C-2) Conventional mode adj. ⊘RV7/RP-40(B-2) TRIG : TP1/MD-59(F-3)

11-57. CHROMA REC CURRENT ADJUSTMENT

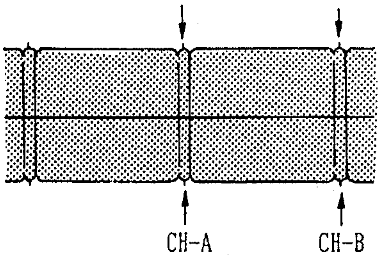
Step1.

machine conditions for adjustment	specifications	adjustments
• Desolder the bridge on SL1/RP-40 (D-2). • Connect between TP5/RP-40 and TP6/RP-40 with a shorting clip. • Short between TP3/RP-40(C-2) and GND with shorting clip. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • REC mode • After the adjustment is completed, remove the shorting clips and resolder the solder bridge.	between TP5/RP40(D-1) and TP6/RP-40(D-1)  A=16±5mA • Use a current probe for observing the current.	⊘RV1/RP-40(B-2) TRIG : TP4/DM-69(D-7)

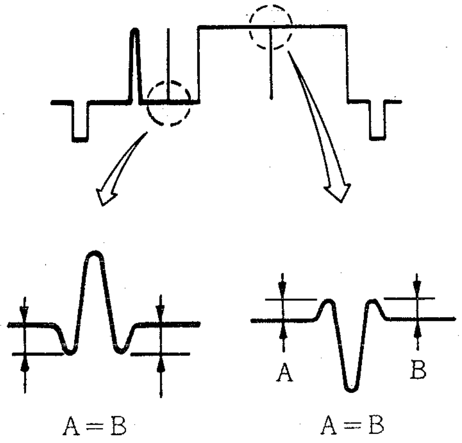
Step2.

machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD. • Maximize the level at TP501/DM-69 using a TRACKING control.	TP501/DM-69(C-2)  A=about 200mV	TRIG : TP4/DM-69(D-7)
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and put the unit into the REC/PB mode.	TP501/DM-69(C-2)  B=A±15% If the specification is not satisfied, readjust Step 1.	

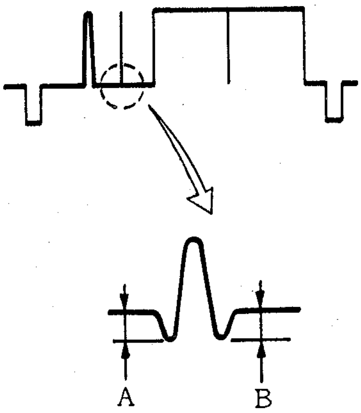
11-58. O. A Y RF OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar SP mode adj. • Insert a KSP cassette tape. • Play back the self recorded portion. Conventional mode adj. • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	TP5/DM-69(E-9)  Level adjustment : 0.35±0.05V Balance adjustment : CH-A=CH-B±10%	Level adj. ⊘RV5/DM-69(A-8) Balance adj. ⊘RV6/DM-69(C-8) TRIG : TP4/DM-69(D-7)

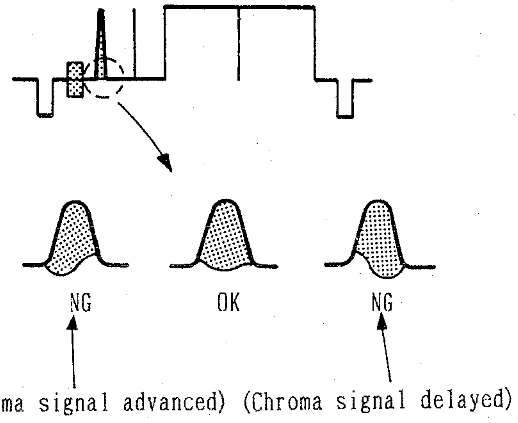
11-59. O. A DUB Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Short between TP2/MD-59(G-7) and GND with a shorting clip. • VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape and play back the self recorded portion. • After the adjustment is completed, remove the shorting clip.	TP15/DM-69(J-2) 	⊘RV12/MD-59(H-1) TRIG : TP509/DM-70(E-2)

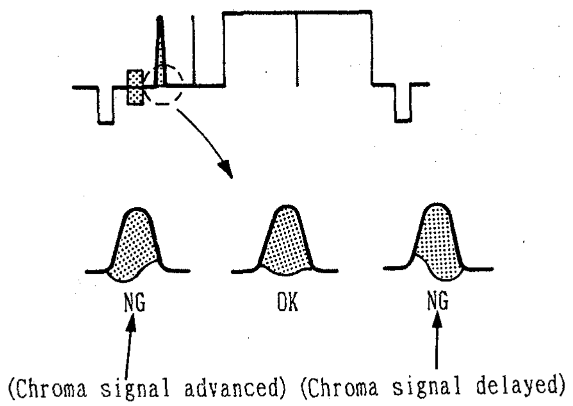
11-60. O. A CONVENTIONAL MODE Y PHASE EQUALIZING ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Pulse & Bar • Insert a KCA or KCS cassette tape and play back the self recorded portion.	TP15/DM-69(J-2)  A=B	⊘RV13/MD-59(H-1) TRIG : TP509/DM-70(E-2)

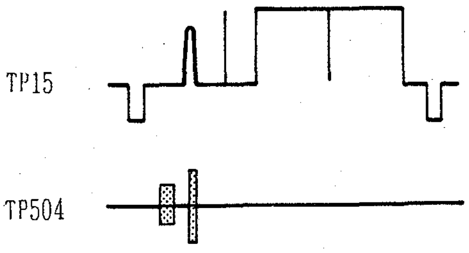
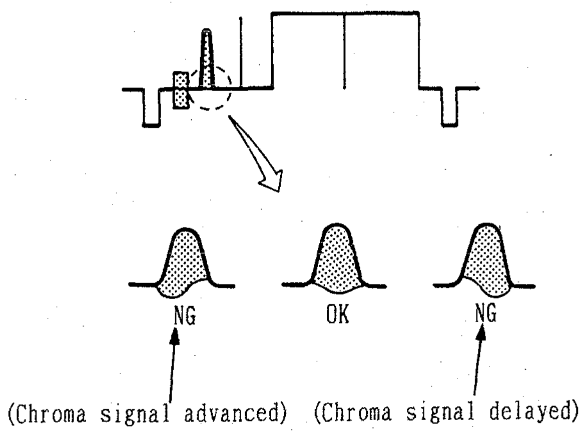
11-61. Y/C DELAY PB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar segment(color) of the alignment tape RR5-1SD.	VIDEO OUT connector(terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘RV503/DM-69(B-4)

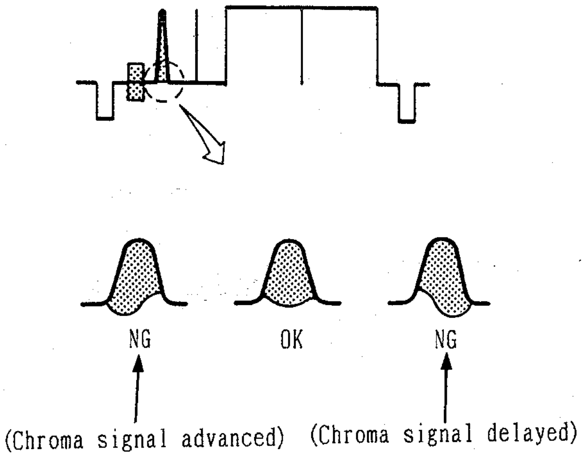
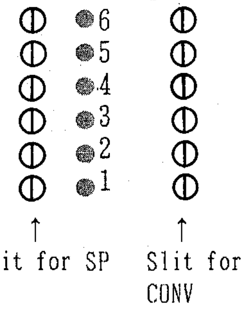
11-62. Y/C DELAY PB ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the MOD 20T segment of the alignment tape RR5-4SB.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘RV502/DM-69 (C-4)

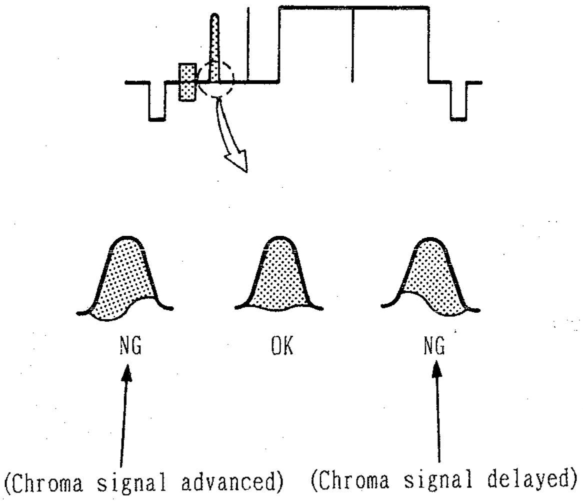
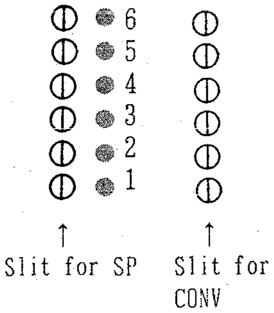
11-63. Y/C DELAY DUB ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• Play back the pulse and bar segment (color) of the alignment tape RR5-1SD. • Oscilloscope : ADD mode.	CH-1 : TP15/DM-69 (J-2) CH-2 : TP504/DM-70 (G-9)  ADD mode  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘DL506/DM-70 (F-8) (When the chroma signal is advanced, adjust the SL number to the higher figure and solder the tap number at one higher figure after the specification is met.) TRIG : TP509/DM-70 (E-2)

11-64. Y/C DELAY REC ADJUSTMENT (SP MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Pulse & Bar • Insert a KSP cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘DL201/MD-59(N-1) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side)  6 5 4 3 2 1 Slit for SP Slit for CONV TRIG : TP509/DM-70(E-2)

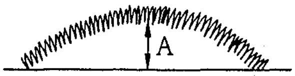
11-65. Y/C DELAY REC ADJUSTMENT (CONVENTIONAL MODE)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Pulse & Bar • Insert a KCA or KCS cassette tape. • Play back the self recorded portion.	VIDEO OUT connector (terminated by 75 ohms)  NG OK NG (Chroma signal advanced) (Chroma signal delayed)	⊘DL201/MD-59(N-1) (When the chroma signal is advanced, adjust the tap number to the higher figure.) DL201 (Soldering side)  6 5 4 3 2 1 Slit for SP Slit for CONV TRIG : TP509/DM-70(E-2)

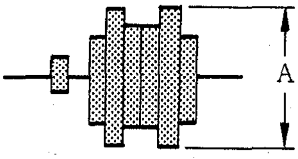
11-66. DG COMPENSATION ADJUSTMENT

Before this adjustment, perform the sec. 11-38. PB ACC LEVEL ADJUSTMENT.

Step 1.

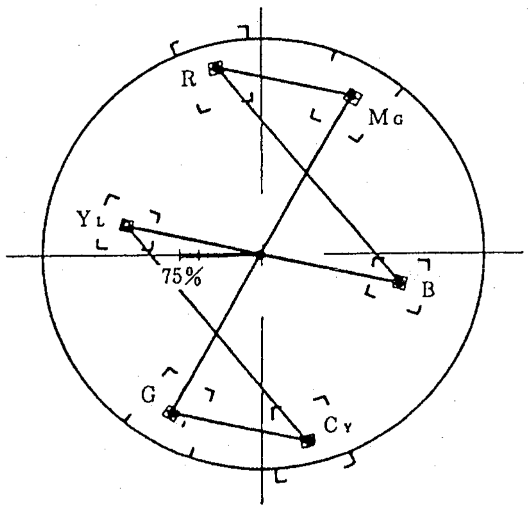
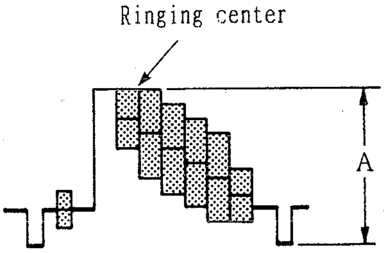
machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : MOD 5 STEP • Adjust the vectorscope's GAIN control so that luminescent spots are on the circumference. • Insert a KSP cassette tape and play back the self recorded portion.	TP515/DM-70(G-8) Vectorscope(DG mode)  Minimize the A DG≦3%	◎RV513/DM-70(E-4)

Step 2.

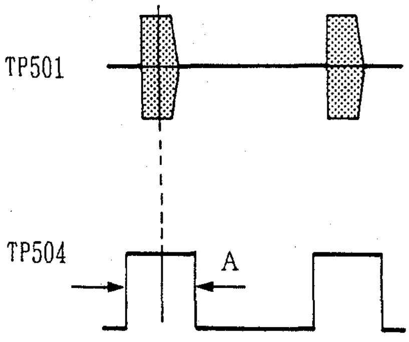
machine conditions for adjustment	specifications	adjustments
• Play back the color-bar segment of the alignment tape RR5-1SD.	TP515/DM-70(G-8)  A=0.8±0.05V (Check)	

11-67. Y/C MIXING ADJUSTMENT

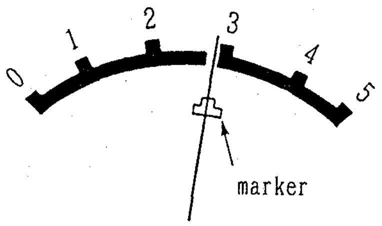
Before this adjustment, perform the sec. 11-16. Y OUTPUT LEVEL ADJUSTMENT(SP MODE) and the sec. 11-17. Y OUTPUT LEVEL ADJUSTMENT (CONVENTIONAL MODE.)

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • Insert a KSP cassette tape. • Playback the self recorded portion.	VIDEO OUT 1 connector(terminated by 75 ohms) Vectorscope  RED luminescent spots should be located in the center of mark⊞.	⊘RV401/DM-69(H-3)
	VIDEO OUT 1 connector(terminated by 75 ohms)  A=1.0±0.05V	⊘RV402/DM-69(H-4)

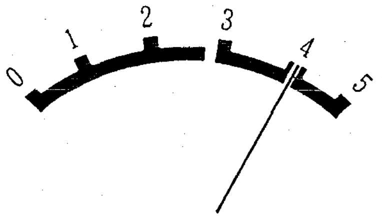
11-68. TIME CODE MUTE PULSE WIDTH ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Play back the time code segment of the alignment tape RR5-1SD. (Only when this adjustment is performed, be possible to INSERT with REC cap.) • AUDIO CH-1 INSERT mode • After the adjustment is completed, remove the REC cap.	CH-1 : TP501/DM-69 (C-2) CH-2 : TP504/DM-69 (C-3)  A = 550±50 μsec	⊘RV524/DM-69 (C-2) TRIG : CH104-13A/DN-69 (D-7)

11-69. VIDEO METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• VIDEO IN connector : Color-bar • EE mode • Wait for more than five minutes after power is turned on.	Video meter  Adjust the meter so that its pointer is on the center of the marker.	⊘RV10/MD-59 (H-6)

11-70. TRACKING METER ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• Set the TRACKING control to the center click position. • VIDEO IN connector : Color-bar • Insert a KSP cassette tape and play back the self recorded portion. • Wait for more than five minutes after power is turned on.	Video/RF meter  Adjust the meter so that its pointer indicates scale 4.	⊘RV9/MD-59 (J-7)

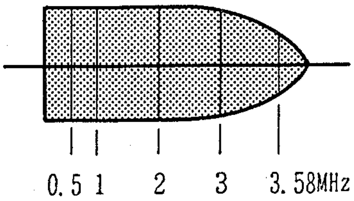
11-71. Y PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>

- Short between TP502/DM-69 board (C-3) and GND with a shorting clip.
- Play back the gated sweep (color) segment of the alignment tape RR5-1SD.
- After the adjustment is completed, remove the shorting clip.

</td>
<td>

VIDEO OUT connector (terminated by 75 ohms)



<table>
<tr><th>0.5MHz</th><th>1MHz</th><th>2MHz</th><th>3MHz</th><th>3.58MHz</th></tr>
<tr><td>100%
(reference)</td><td>100
± 5%</td><td>95
±10%</td><td>90
$^{+10}_{-5}$%</td><td>60
$^{+10}_{-5}$%</td></tr>
</table>

</td>
<td>⊘CV3/DM-69(H-6)</td>
</tr>
</table>

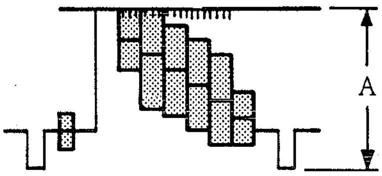
11-72. PB CHARACTER MIX ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>specifications</th><th>adjustments</th></tr>
<tr>
<td>

- VIDEO IN connector : Color-bar
- Indicate the ITEM No. 104, TITLE (LARGE) in the DIAL MENU operation on the monitor (Refer to Section 2-11).
- Select the ■ in the character menu area and set it one line in the title setup area.
- Superimpose the title on the monitor.

</td>
<td>

VIDEO MONITOR OUT connector (terminated by 75 ohms)



A : Adjust the character signal portion to the white level.

</td>
<td>⊘RV403/DM-69(G-2)</td>
</tr>
</table>

SECTION 12

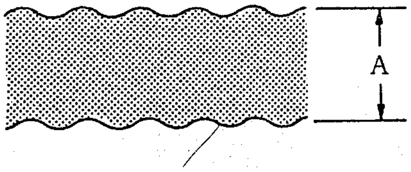
TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

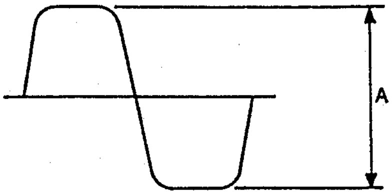
- Oscilloscope
- Square Wave Oscillator
- Cassette Tape : KSP-60
- Alignment Tape : RR5-1SD (Part No. 8-960-037-80) -SP tape-

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	———	OFF	———
3	Gated sweep (B/W)	1kHz, 0dB		———
3	Gated sweep (color)	10kHz, -10dB		———
3	Pulse & Bar (color)	1kHz, -20dB		———
		40Hz, -20dB		———
		7kHz, -20dB		———
		10kHz, -20dB		———
		15kHz, -20dB		———
2	Pulse & Bar (B/W)	1kHz, -20dB	ON	———
		15kHz, -20dB		———
2	Monoscope (color)	———	OFF	———
2	Pseudo color bars	———		TIME CODE

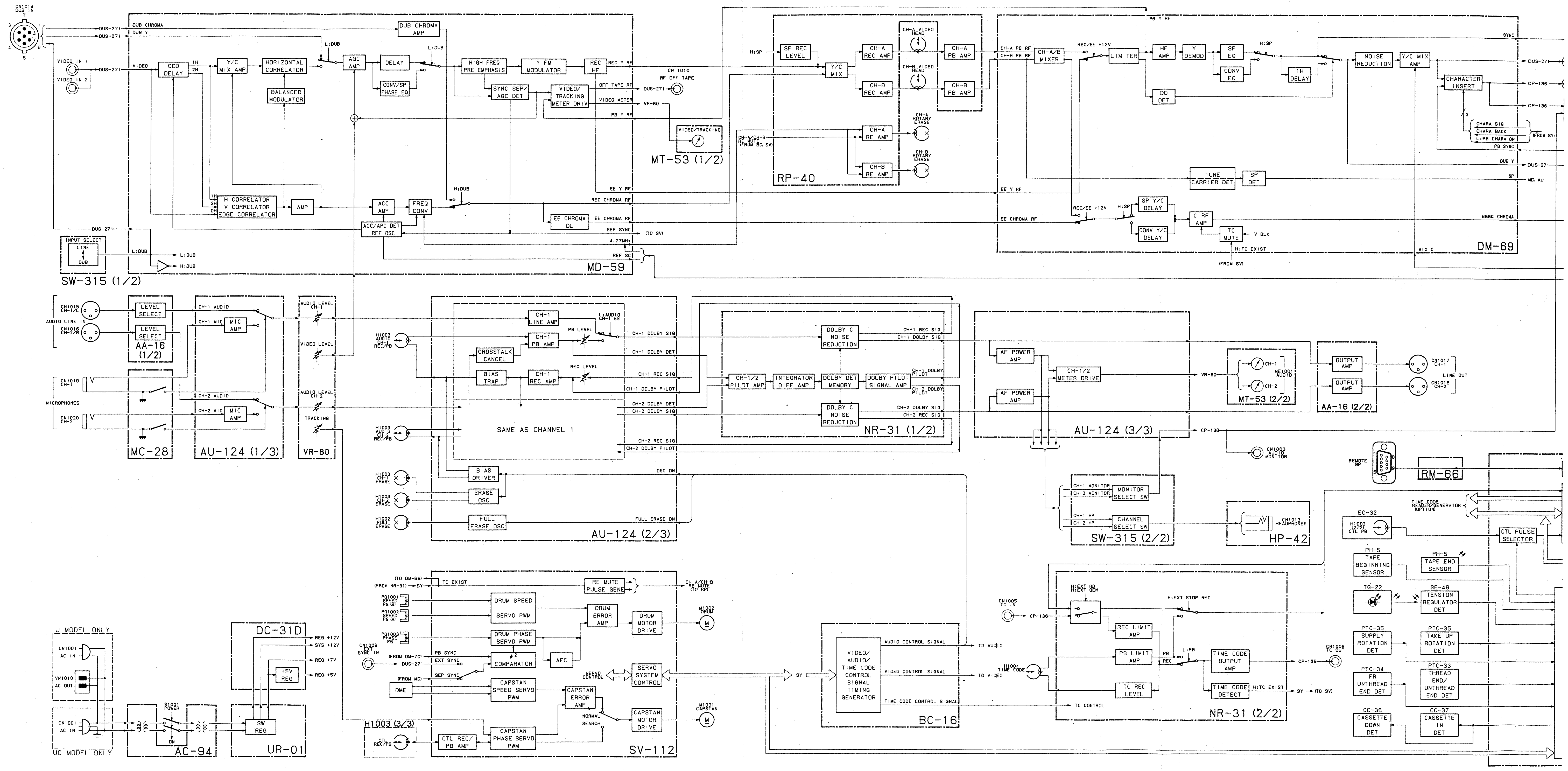
12-1. TC PB LEVEL ADJUSTMENT

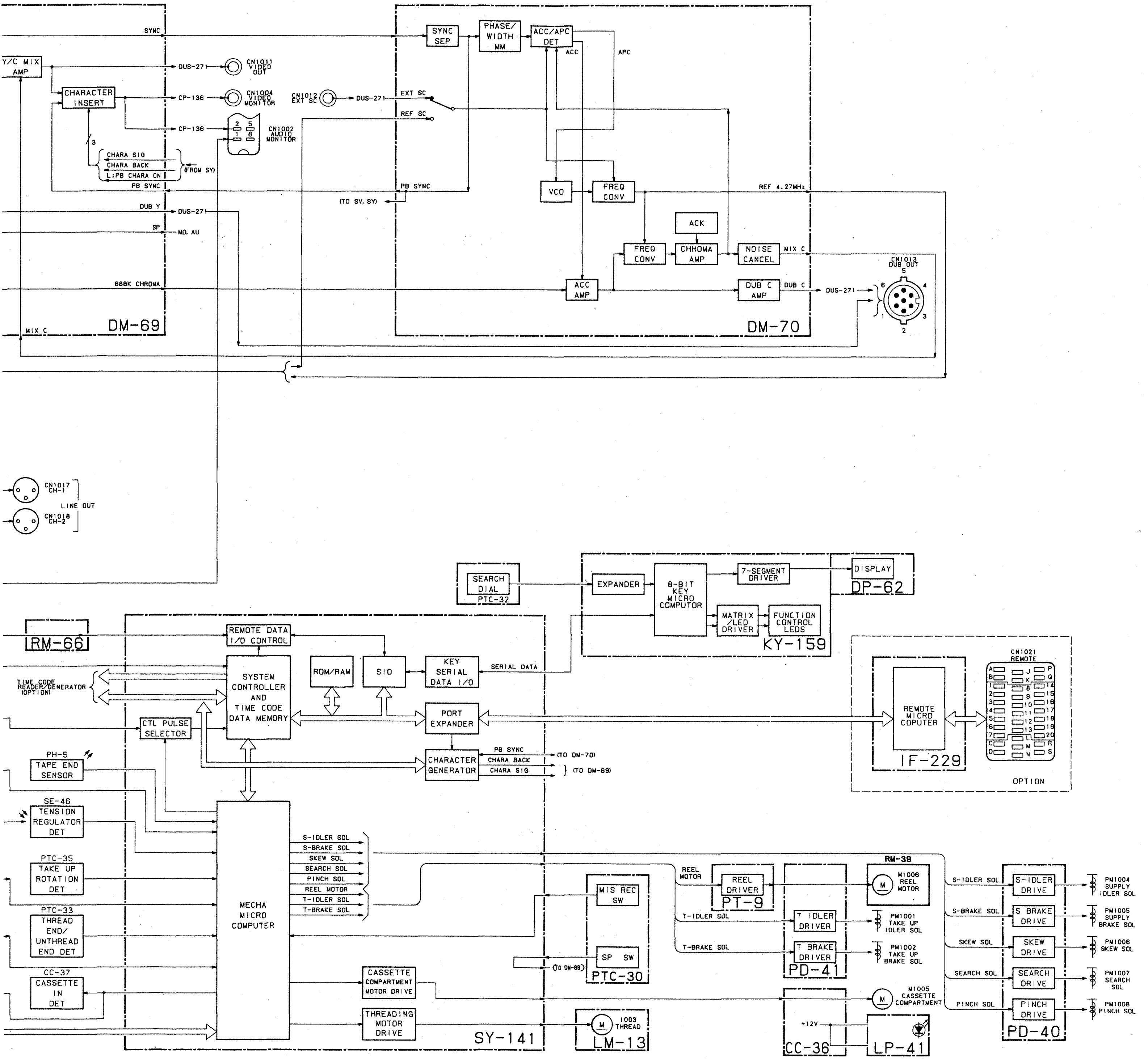
machine conditions for adjustment	specifications	adjustments
• Play back the time code signal on alignment tape RR5-1SD.	TP405/NR-31(C-6) GND : E400/NR-31(A-6)  A=1.4±0.1V	⊘RV401/NR-31(C-6) TRIG : TP4/SV-112(L-6)

12-2. TC REC LEVEL ADJUSTMENT

machine conditions for adjustment	specifications	adjustments
• TIME CODE IN : 1.2kHz, 1Vp-p, square wave • VIDEO IN : color-bar • Insert the KSP-60 tape, and play back the recorded segment.	TP405/NR-31(C-6)  A=1.4±0.1V	⊘RV402/NR-31(L-6) REC mode→adj PB mode→check

SECTION 13
BLOCK DIAGRAM

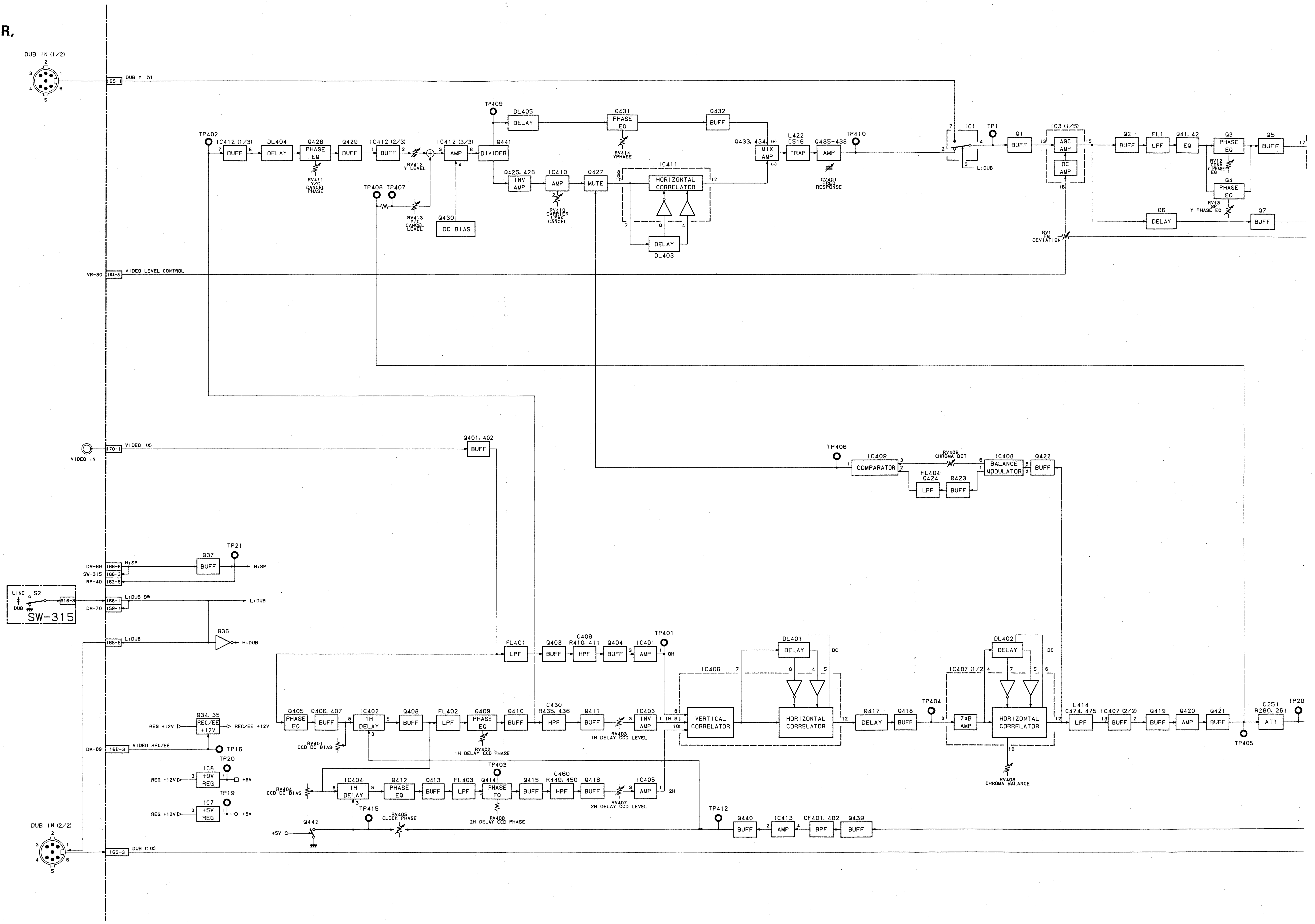

CN1014 DUB IN
DUB CHROMA
DUB Y
DUB CHROMA AMP
VIDEO IN 1
VIDEO IN 2
CCD DELAY
Y/C MIX AMP
HORIZONTAL CORRELATOR
BALANCED MODULATOR
AGC AMP
DELAY
CONV/SP PHASE EQ
HIGH FREQ PRE EMPHASIS
Y FM MODULATOR
REC HF
SYNC SEP/ AGC DET
VIDEO/ TRACKING METER DRIV
CN 1010 RF OFF TAPE
VIDEO/TRACKING
MT-53 (1/2)
H CORRELATOR
V CORRELATOR
EDGE CORRELATOR
AMP
ACC AMP
FREQ CONV
ACC/APC DET REF OSC
EE CHROMA DL
INPUT SELECT
LINE
DUB
SW-315 (1/2)
MD-59
SP REC LEVEL
Y/C MIX
CH-A REC AMP
CH-B REC AMP
CH-A VIDEO HEAD
CH-B VIDEO HEAD
CH-A PB AMP
CH-B PB AMP
CH-A RE AMP
CH-B RE AMP
CH-A ROTARY ERASE
CH-B ROTARY ERASE
RP-40
CH-A/B MIXER
LIMITER
HF AMP
Y DEMOD
DD DET
SP EQ
CONV EQ
1H DELAY
NOISE REDUCTION
Y/C MIX AMP
CHARACTER INSERT
TUNE CARRIER DET
SP DET
SP Y/C DELAY
CONV Y/C DELAY
C RF AMP
TC MUTE
DM-69
CN1015 CH-1/L
CN1016 CH-2/R
AUDIO LINE IN
LEVEL SELECT
AA-16 (1/2)
CN1019 CH-1
CN1020 CH-2
MICROPHONES
MC-28
MIC AMP
AU-124 (1/3)
AUDIO LEVEL CH-1
VIDEO LEVEL
AUDIO LEVEL CH-2
TRACKING
VR-80
H1003 AUDIO CH-1 REC/PB
CH-1 LINE AMP
CH-1 PB AMP
PB LEVEL
CROSSTALK CANCEL
BIAS TRAP
CH-1 REC AMP
REC LEVEL
SAME AS CHANNEL 1
H1003 AUDIO CH-2 REC/PB
BIAS DRIVER
ERASE OSC
FULL ERASE OSC
H1003 CH-1 ERASE
H1003 CH-2 ERASE
H1002 FULL ERASE
AU-124 (2/3)
DOLBY C NOISE REDUCTION
CH-1/2 PILOT AMP
INTEGRATOR DIFF AMP
DOLBY DET MEMORY
DOLBY PILOT SIGNAL AMP
NR-31 (1/2)
AF POWER AMP
CH-1/2 METER DRIVE
AU-124 (3/3)
MT-53 (2/2)
M1001 AUDIO
OUTPUT AMP
AA-16 (2/2)
CN1017 CH-1
CN1018 CH-2
LINE OUT
CN1003 AUDIO MONITOR
MONITOR SELECT SW
CHANNEL SELECT SW
SW-315 (2/2)
CN1013 HEADPHONES
HP-42
REMOTE 9P
RM-66
TIME CODE READER/GENERATOR (OPTION)
EC-32
H1002 CTL PB
CTL PULSE SELECTOR
PH-5 TAPE BEGINNING SENSOR
PH-5 TAPE END SENSOR
TG-22
SE-46 TENSION REGULATOR DET
PTC-35 SUPPLY ROTATION DET
PTC-35 TAKE UP ROTATION DET
PTC-34 FR UNTHREAD END DET
PTC-33 THREAD END/ UNTHREAD END DET
CC-36 CASSETTE DOWN DET
CC-37 CASSETTE IN DET
TC EXIST
RE MUTE PULSE GENE
DRUM SPEED SERVO PWM
DRUM PHASE SERVO PWM
DRUM ERROR AMP
DRUM MOTOR DRIVE
M1002 DRUM
COMPARATOR
AFC
DME
CAPSTAN SPEED SERVO PWM
CAPSTAN ERROR AMP
NORMAL SEARCH
CAPSTAN MOTOR DRIVE
M1001 CAPSTAN
SERVO SYSTEM CONTROL
CTL REC/PB AMP
CAPSTAN PHASE SERVO PWM
SV-112
CN1009 EXT SYNC IN
H1003 (3/3)
CTL REC/PB
VIDEO/ AUDIO/ TIME CODE CONTROL SIGNAL TIMING GENERATOR
AUDIO CONTROL SIGNAL
VIDEO CONTROL SIGNAL
TIME CODE CONTROL SIGNAL
BC-16
CN1005 TC IN
H:EXT RD H:EXT GEN
H:EXT STOP REC
REC LIMIT AMP
PB LIMIT AMP
TC REC LEVEL
TIME CODE OUTPUT AMP
TIME CODE DETECT
H1004 TIME CODE
CN1006 TC OUT
NR-31 (2/2)
J MODEL ONLY
CN1001 AC IN
VN1010 AC OUT
UC MODEL ONLY
S1001 POWER
ON
AC-94
SW REG
UR-01
+5V REG
DC-31D
REG +12V
SYS +12V
REG +7V
REG +5V

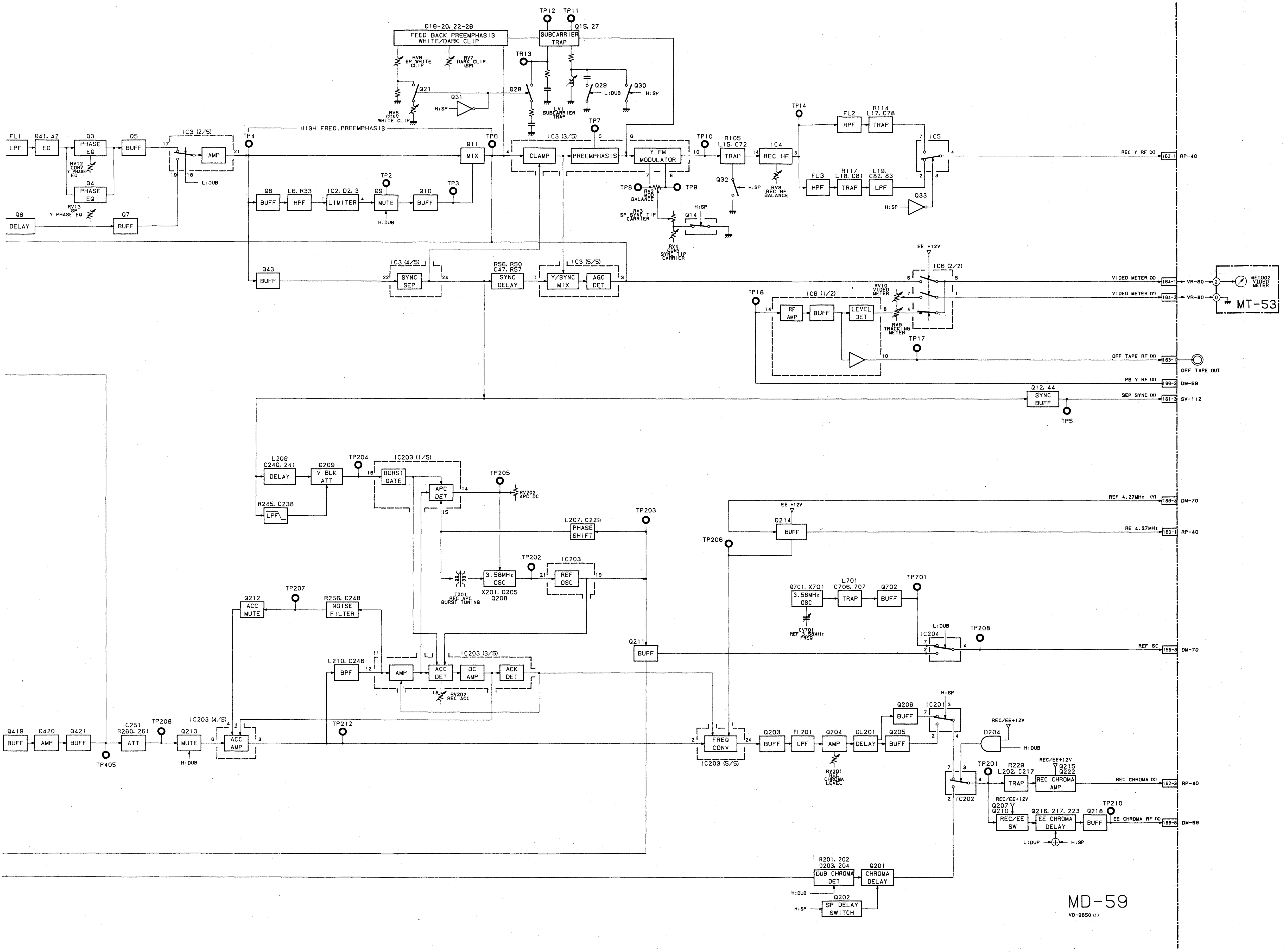

SYNC
Y/C MIX AMP
DUS-271
CN1011 VIDEO OUT
CHARACTER INSERT
CP-136
CN1004 VIDEO MONITOR
CN1012 EXT SC
CP-136
2 5 1 6
CN1002 AUDIO MONITOR
3
CHARA SIG
CHARA BACK
L:PB CHARA ON
(FROM SY)
PB SYNC
DUB Y
DUS-271
SP
MD, AU
688K CHROMA
MIX C
DM-69
SYNC SEP
PHASE/ WIDTH MM
ACC/APC DET
ACC
APC
EXT SC
REF SC
PB SYNC
(TO SV, SY)
VCO
FREQ CONV
REF 4.27MHz
ACK
FREQ CONV
CHROMA AMP
NOISE CANCEL
MIX C
ACC AMP
DUB C AMP
DUB C
DUS-271
CN1013 DUB OUT
5 4 3 2 1 6
DM-70
CN1017 CH-1
LINE OUT
CN1018 CH-2
SEARCH DIAL
PTC-32
EXPANDER
8-BIT KEY MICRO COMPUTOR
7-SEGMENT DRIVER
DISPLAY
DP-62
MATRIX /LED DRIVER
FUNCTION CONTROL LEDS
KY-159
RM-66
REMOTE DATA I/O CONTROL
TIME CODE READER/GENERATOR (OPTION)
SYSTEM CONTROLLER AND TIME CODE DATA MEMORY
ROM/RAM
SIO
KEY SERIAL DATA I/O
SERIAL DATA
CTL PULSE SELECTOR
PORT EXPANDER
REMOTE MICRO COPUTER
IF-229
CN1021 REMOTE
A B 1 2 3 4 5 6 7 C D
J K 8 9 10 11 12 13 L M N
P Q 14 15 16 17 18 19 20 R S
OPTION
PH-5
TAPE END SENSOR
CHARACTER GENERATOR
PB SYNC
CHARA BACK
CHARA SIG
(TO DM-70)
(TO DM-69)
SE-46
TENSION REGULATOR DET
PTC-35
TAKE UP ROTATION DET
PTC-33
THREAD END/ UNTHREAD END DET
CC-37
CASSETTE IN DET
MECHA MICRO COMPUTER
S-IDLER SOL
S-BRAKE SOL
SKEW SOL
SEARCH SOL
PINCH SOL
REEL MOTOR
T-IDLER SOL
T-BRAKE SOL
CASSETTE COMPARTMENT MOTOR DRIVE
THREADING MOTOR DRIVE
SY-141
MIS REC SW
SP SW
(TO DM-69)
PTC-30
M
1003 THREAD
LM-13
REEL MOTOR
REEL DRIVER
PT-9
T-IDLER SOL
T IDLER DRIVER
T-BRAKE SOL
T BRAKE DRIVER
PD-41
RM-39
M
M1006 REEL MOTOR
PM1001 TAKE UP IDLER SOL
PM1002 TAKE UP BRAKE SOL
M
M1005 CASSETTE COMPARTMENT
+12V
CC-36
LP-41
S-IDLER SOL
S-IDLER DRIVE
S-BRAKE SOL
S BRAKE DRIVE
SKEW SOL
SKEW DRIVE
SEARCH SOL
SEARCH DRIVE
PINCH SOL
PINCH DRIVE
PD-40
PM1004 SUPPLY IDLER SOL
PM1005 SUPPLY BRAKE SOL
PM1006 SKEW SOL
PM1007 SEARCH SOL
PM1008 PINCH SOL

OVERALL

VO-9850 (1)

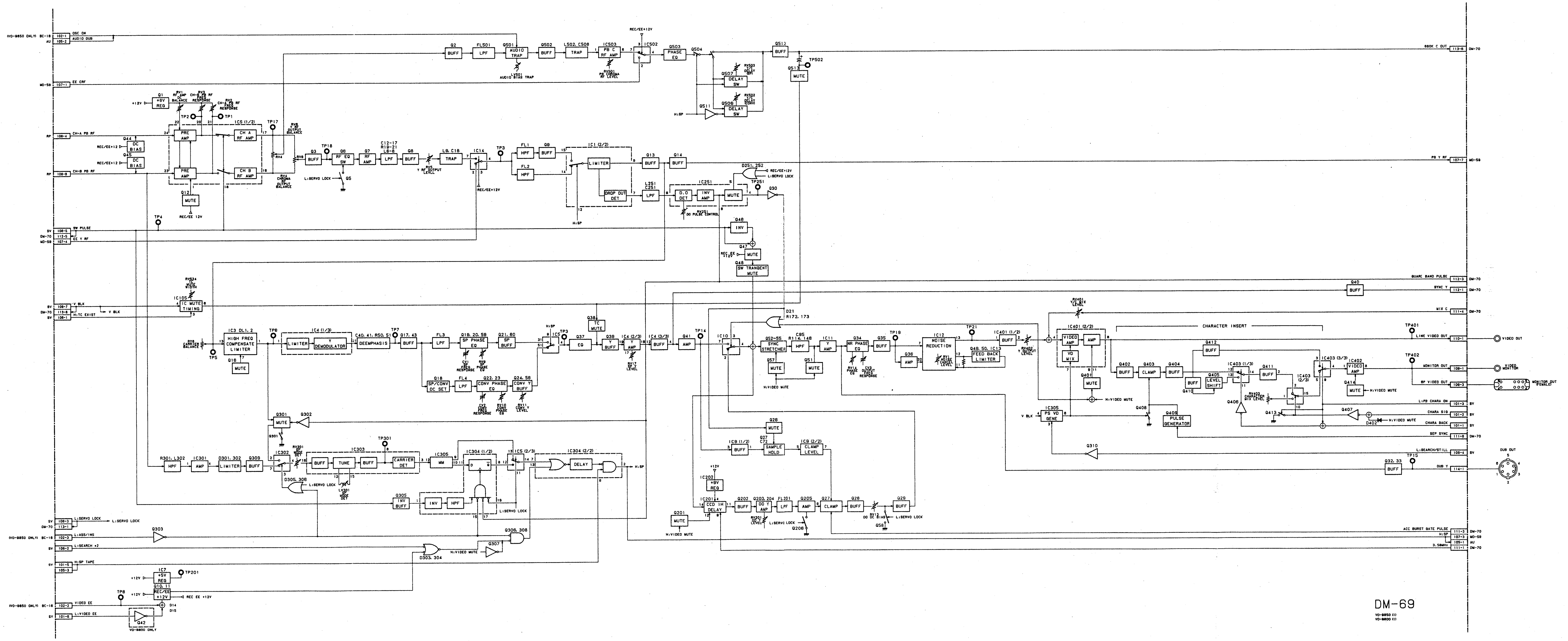
VIDEO SYSTEM
Y/C SEPARATOR, Y MODULATOR, C REC PROCESSOR, METER DRIVER


DUB IN (1/2)
165-1
DUB Y (Y)
TP402
IC412 (1/3)
BUFF
DL404
DELAY
Q428
PHASE EQ
RV411 Y/C CANCEL PHASE
Q429
BUFF
IC412 (2/3)
BUFF
RV412 Y LEVEL
TP408 TP407
RV413 Y/C CANCEL LEVEL
IC412 (3/3)
AMP
Q430
DC BIAS
Q441
DIVIDER
TP409
DL405
DELAY
Q431
PHASE EQ
RV414 YPHASE
Q432
BUFF
Q425, 426
INV AMP
IC410
AMP
RV410 CARRIER LEAK CANCEL
Q427
MUTE
IC411
HORIZONTAL CORRELATOR
DELAY
DL403
Q433, 434
MIX AMP
L422 C516
TRAP
Q435-438
AMP
CV401 FREQ RESPONSE
TP410
IC1
L:DUB
TP1
Q1
BUFF
IC3 (1/5)
AGC AMP
DC AMP
RV1 FM DEVIATION
Q2
BUFF
FL1
LPF
Q41, 42
EQ
Q3
PHASE EQ
RV12 CONV Y PHASE EQ
Q4
PHASE EQ
RV13 SP Y PHASE EQ
Q5
BUFF
Q6
DELAY
Q7
BUFF
VR-80
164-3
VIDEO LEVEL CONTROL
VIDEO IN
170-1
VIDEO (X)
Q401, 402
BUFF
TP406
IC409
COMPARATOR
RV409 CHROMA DET
IC408
BALANCE MODULATOR
Q422
BUFF
FL404 Q424
LPF
Q423
BUFF
DM-69 166-6
SW-315 168-3
RP-40 162-5
H:SP
Q37
BUFF
TP21
H:SP
LINE S2 DUB
916-3
SW-315
168-1
DM-70 159-1
L:DUB SW
L:DUB
165-5
L:DUB
Q36
H:DUB
Q34, 35
REC/EE +12V
REG +12V
REC/EE +12V
DM-69 166-3
VIDEO REC/EE
TP16
TP20
IC8
+9V REG
REG +12V
+9V
TP19
IC7
+5V REG
REG +12V
+5V
DUB IN (2/2)
165-3
DUB C (X)
FL401
LPF
Q403
BUFF
C406 R410, 411
HPF
Q404
BUFF
IC401
AMP
TP401
0H
Q405
PHASE EQ
Q406, 407
BUFF
RV401 CCD DC BIAS
IC402
1H DELAY
Q408
BUFF
FL402
LPF
Q409
PHASE EQ
RV402 1H DELAY CCD PHASE
Q410
BUFF
C430 R435, 436
HPF
Q411
BUFF
RV403 1H DELAY CCD LEVEL
IC403
INV AMP
1H
IC406
VERTICAL CORRELATOR
DL401
DELAY
DC
HORIZONTAL CORRELATOR
Q417
DELAY
Q418
BUFF
TP404
IC407 (1/2)
7dB AMP
DL402
DELAY
DC
HORIZONTAL CORRELATOR
RV408 CHROMA BALANCE
L414 C474, 475
LPF
IC407 (2/2)
BUFF
Q419
BUFF
Q420
AMP
Q421
BUFF
TP405
C251 R260, 261
ATT
TP20
RV404 CCD DC BIAS
IC404
1H DELAY
Q412
PHASE EQ
Q413
BUFF
FL403
LPF
TP403
Q414
PHASE EQ
RV406 2H DELAY CCD PHASE
Q415
BUFF
C460 R449, 450
HPF
Q416
BUFF
RV407 2H DELAY CCD LEVEL
IC405
AMP
2H
TP415
RV405 CLOCK PHASE
Q442
+5V
TP412
Q440
BUFF
IC413
AMP
CF401, 402
BPF
Q439
BUFF

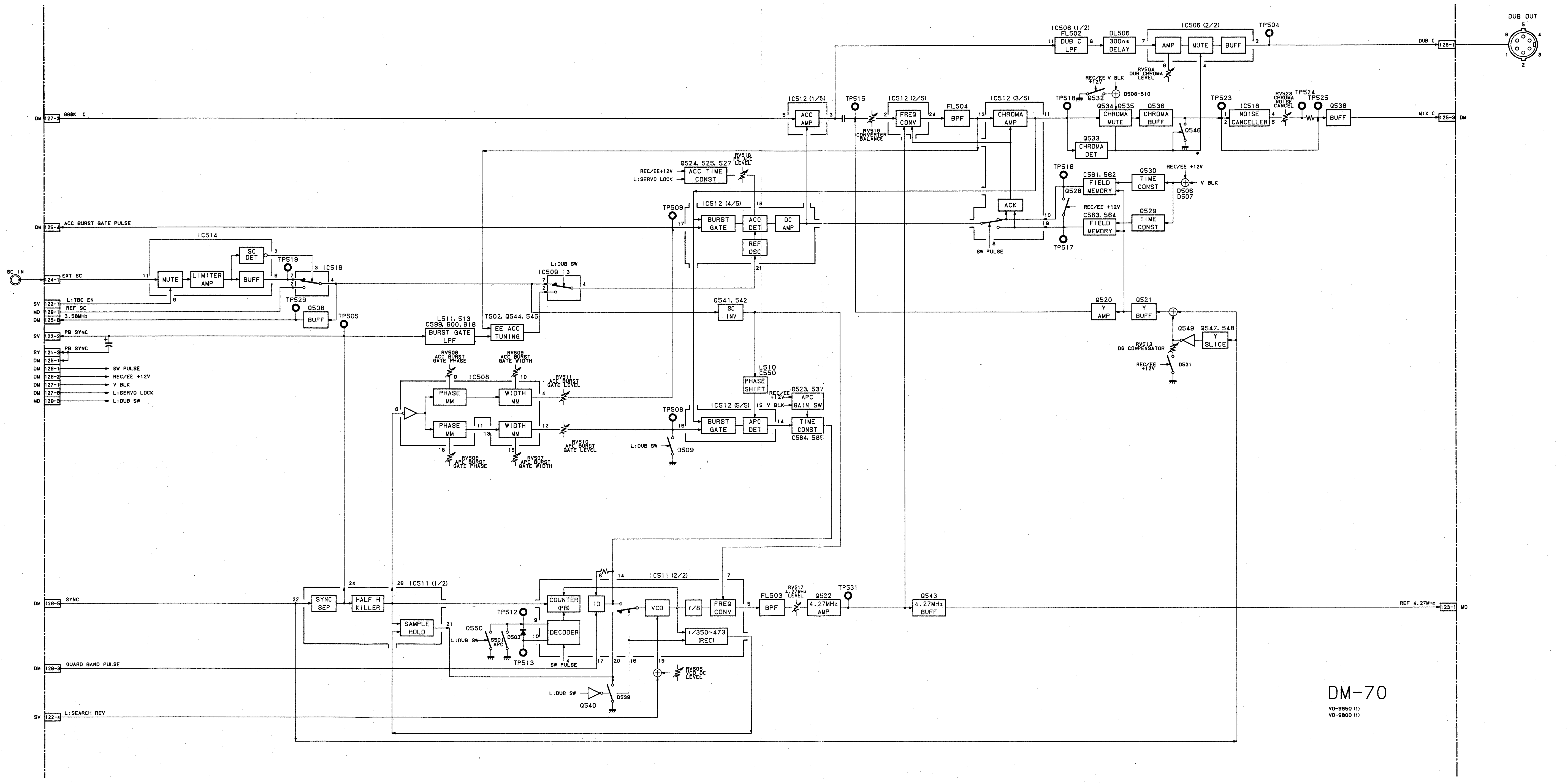

FL1
LPF
Q41, 42
EQ
Q3
PHASE EQ
RV12 CONV Y PHASE EQ
Q4
PHASE EQ
RV13 SP Y PHASE EQ
Q5
BUFF
Q6
DELAY
Q7
BUFF
IC3 (2/5)
AMP
L:DUB
TP4
HIGH FREQ. PREEMPHASIS
Q16-20, 22-26
FEED BACK PREEMPHASIS WHITE/DARK CLIP
RV6 SP WHITE CLIP
RV7 DARK CLIP (SP)
Q21
Q31
H:SP
RV5 CONV WHITE CLIP
TP12
TP11
Q15, 27
SUBCARRIER TRAP
TR13
Q28
LV1 SUBCARRIER TRAP
Q29
L:DUB
Q30
H:SP
TP7
Q8
BUFF
L6, R33
HPF
IC2, D2, 3
LIMITER
TP2
Q9
MUTE
H:DUB
Q10
BUFF
TP3
Q11
MIX
TP6
IC3 (3/5)
CLAMP
PREEMPHASIS
Y FM MODULATOR
TP8
RV2 MOD BALANCE
TP9
RV3 SP SYNC TIP CARRIER
Q14
H:SP
RV4 CONV SYNC TIP CARRIER
TP10
R105 L15, C72
TRAP
Q32
H:SP
IC4
REC HF
RV8 REC HF BALANCE
TP14
FL2
HPF
R114 L17, C78
TRAP
FL3
HPF
R117 L18, C81
TRAP
L19, C82, 83
LPF
IC5
Q33
H:SP
REC Y RF (X)
162-1
RP-40
Q43
BUFF
IC3 (4/5)
SYNC SEP
R56, R50 C47, R57
SYNC DELAY
IC3 (5/5)
Y/SYNC MIX
AGC DET
EE +12V
IC6 (2/2)
RV10 VIDEO METER
VIDEO METER (X)
164-1
VR-80
VIDEO METER (Y)
164-2
VR-80
ME1002 VIDEO METER
MT-53
TP18
IC6 (1/2)
RF AMP
BUFF
LEVEL DET
RV9 TRACKING METER
TP17
OFF TAPE RF (X)
163-1
OFF TAPE OUT
PB Y RF (X)
166-2
DM-69
Q12, 44
SYNC BUFF
SEP SYNC (X)
161-3
SV-112
TP5
L209 C240, 241
DELAY
Q209
V BLK ATT
R245, C238
LPF
TP204
IC203 (1/5)
BURST GATE
APC DET
TP205
RV203 APC DC
L207, C225
PHASE SHIFT
TP203
REF 4.27MHz (Y)
169-3
DM-70
EE +12V
Q214
BUFF
RE 4.27MHz
160-1
RP-40
TP206
T201 REF APC BURST TUNING
3.58MHz OSC
X201, D205 Q208
TP202
IC203
REF OSC
Q701, X701
3.58MHz OSC
CV701 REF 3.58MHz FREQ
L701 C706, 707
TRAP
Q702
BUFF
TP701
L:DUB
IC204
TP208
REF SC
159-3
DM-70
Q212
ACC MUTE
TP207
R256, C248
NOISE FILTER
L210, C246
BPF
AMP
IC203 (3/5)
ACC DET
DC AMP
ACK DET
RV202 REC ACC
Q211
BUFF
Q419
BUFF
Q420
AMP
Q421
BUFF
TP405
C251 R260, 261
ATT
TP209
Q213
MUTE
H:DUB
IC203 (4/5)
ACC AMP
TP212
FREQ CONV
IC203 (5/5)
Q203
BUFF
FL201
LPF
Q204
AMP
RV201 REC CHROMA LEVEL
DL201
DELAY
Q205
BUFF
Q206
BUFF
H:SP
IC201
REC/EE+12V
D204
H:DUB
TP201
IC202
R229 L202, C217
TRAP
REC/EE+12V Q215 Q222
REC CHROMA AMP
REC CHROMA (X)
162-3
RP-40
REC/EE+12V
Q207
Q210
REC/EE SW
Q216, 217, 223
EE CHROMA DELAY
Q218
BUFF
TP210
EE CHROMA RF (X)
166-6
DM-69
L:DUP
H:SP
R201, 202 Q203, 204
DUB CHROMA DET
Q201
CHROMA DELAY
H:DUB
Q202
SP DELAY SWITCH
H:SP
MD-59
VD-9850 (1)

VIDEO SYSTEM

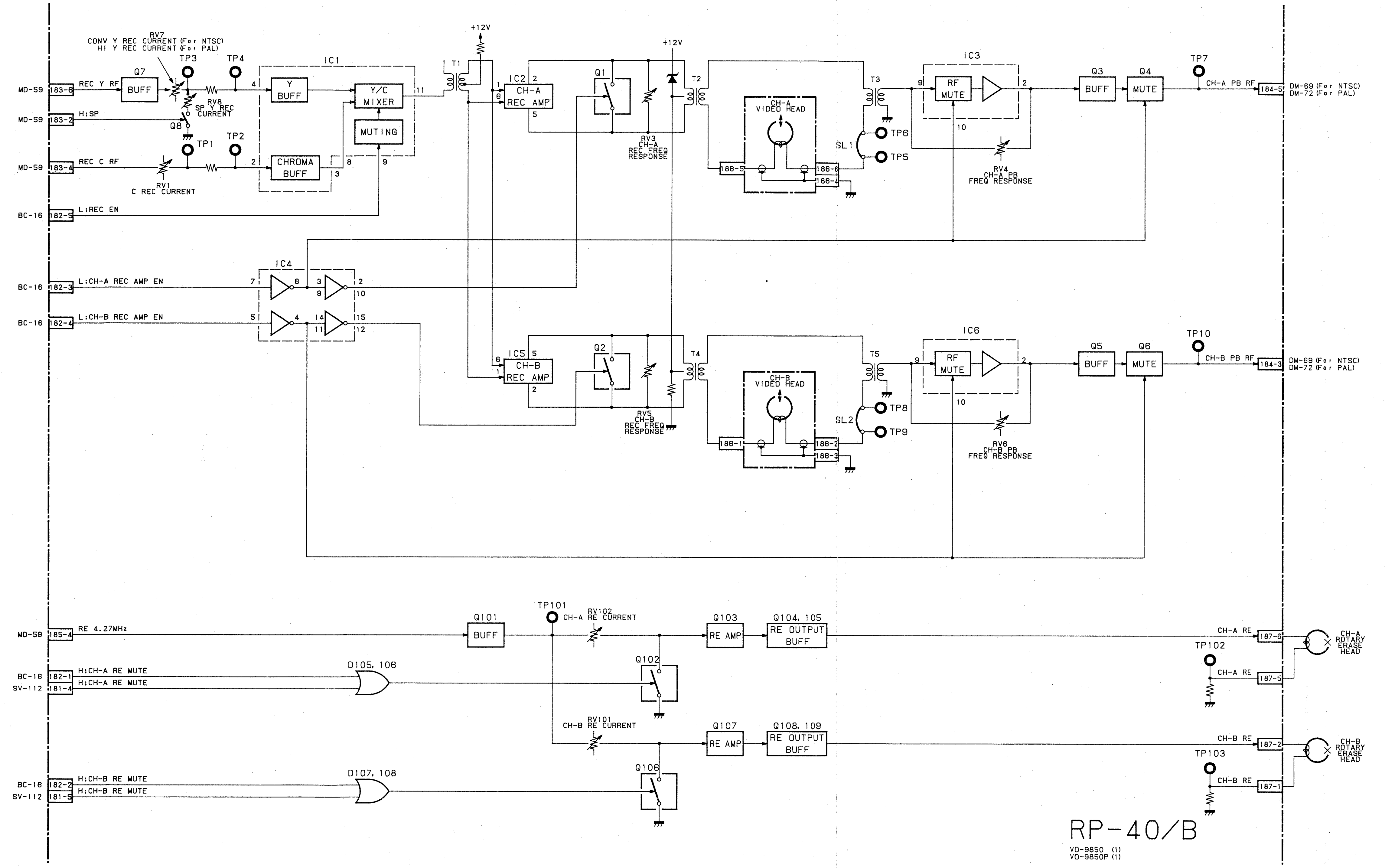
Y DEMODULATOR, SP DETECTOR, CHARACTER MIXER


(VO-9850 ONLY) BC-18 102-1 OSC ON
AU 105-2 AUDIO DUB
MD-59 107-1 EE CRF
RP 108-4 CH-A PB RF
RP 108-8 CH-B PB RF
SV 108-5 SW PULSE
DM-70 112-5
MD-59 107-4 EE Y RF
SV 108-7 V BLK
DM-70 113-8 H:TC EXIST
SV 108-1
Q1 +8V REG
+12V
RV1 RF AMP DC BALANCE
RV3 CH-B PB RF FREQ RESPONSE
RV2 CH-A PB RF FREQ RESPONSE
TP2
TP1
IC5 (1/2)
PRE AMP
CH A RF AMP
CH B RF AMP
Q44 DC BIAS
Q45 DC BIAS
REC/EE+12
Q12 MUTE
REC/EE 12V
TP4
TP17
RV6 Y RF OUTPUT BALANCE
RV4 CHROMA RF OUTPUT BALANCE
TP18
Q3 BUFF
Q6 RF EQ SW
L:SERVO LOCK
Q5
Q7 RF AMP
C12-17 R19-21 L6-8 LPF
Q8 BUFF
RV5 Y RF OUTPUT LEVLL
L9, C18 TRAP
IC14
REC/EE+12V
Q2 BUFF
FL501 LPF
Q501 AUDIO TRAP
LV501 AUDIO BIAS TRAP
Q502 BUFF
L502, C508 TRAP
IC503 PB C RF AMP
RV501 PB CHROMA RF LEVEL
REC/EE+12V
IC502
Q503 PHASE EQ
Q504
Q507 DELAY SW
RV503 Y/C DELAY (SP)
Q506 DELAY SW
RV502 Y/C DELAY (CONV)
Q511
H:SP
Q512 BUFF
TP502
Q513 MUTE
TP3
FL1 HPF
Q9 BUFF
FL2 HPF
IC1 (2/2)
LIMITER
DROP OUT DET
H:SP
Q13 BUFF
Q14 BUFF
L251 C251 LPF
IC251
D.O DET
INV AMP
MUTE
RV251 DO PULSE CONTROL
D251, 252
REC/EE+12V
L:SERVO LOCK
TP251
Q30
Q46 INV
Q47 MUTE
REC EE +12V
Q48 SW TRANGENT MUTE
RV524 TC MUTE WIDTH
IC105 IC MUTE TIMING
V BLK
RV8 CARRIER BALANCE
TP5
IC3 DL1, 2 HIGH FREQ COMPENSATE LIMITER
Q16 MUTE
TP6
IC4 (1/3)
LIMITER
Y DEMODULATOR
C40, 41, R50, 51 DEEMPHASIS
TP7
Q17, 43 BUFF
FL3 LPF
Q19, 20, 59 SP PHASE EQ
CV1 SP FREQ RESPONSE
RV9 SP PHASE EQ
Q21, 60 SP BUFF
Q18 SP/CONV DC SET
FL4 LPF
Q22, 23 CONV PHASE EQ
CV2 CONV FREQ RESPONSE
RV10 CONV PHASE EQ
Q24, 58 CONV Y BUFF
RV11 CONV Y LEVEL
H:SP
IC5
TP3
Q37 EQ
Q38 TC MUTE
Q39 Y BUFF
IC4 (2/3) Y AMP
RV17 SP Y LEVEL
IC4 (3/3) BUFF
Q41 AMP
TP14
IC10
D21 R172, 173
Q52~55 SYNC STRETCHER
C95 R114, 146 HPF
IC11 Y AMP
Q57 MUTE
Q51 MUTE
H:VIDEO MUTE
Q34 NR PHASE EQ
RV14 PHASE EQ
CV3 OUTPUT FREQ RESPONSE
Q35 BUFF
TP19
Q36 AMP
IC12 NOISE REDUCTION
RV1 NOISE CANCEL LEVEL
TP21
Q49, 50, IC13 FEED BACK LIMITER
IC401 (1/2) BUFF
RV402 Y OUTPUT LEVEL
RV401 Y/C MIX LEVEL
IC401 (2/2)
VIDEO AMP
AMP
VD MIX
Q401 MUTE
H:VIDEO MUTE
IC305 PS VD GENE
V BLK
Q408
Q310
Q26 MUTE
IC9 (1/2) BUFF
Q27 C72 SAMPLE HOLD
IC9 (2/2) CLAMP LEVEL
+12V
IC202 +9V REG
IC201 CCD 1H DELAY
Q201 MUTE
H:VIDEO MUTE
Q202 BUFF
Q203, 204 DO Y AMP
RV201 DO Y LEVEL
FL201 LPF
Q205 AMP
L:SERVO LOCK
Q206
Q27 CLAMP
Q28 BUFF
RV13 DO DC BIAS
Q58
Q29 BUFF
L:SERVO LOCK
Q301 MUTE
Q302
S301
R301, L302 HPF
IC301 AMP
D301, 302 LIMITER
Q309 BUFF
IC302
RV301 SP MODE DET
IC303
BUFF
TUNE
BUFF
TP301
CARRIER DET
LV301 SP MODE DET
D305, 306
L:SERVO LOCK
IC305 MM
IC304 (1/2)
D Q
Q305 INV BUFF
INV
HPF
L:SERVO LOCK
IC5 (2/3)
IC304 (2/2)
DELAY
H:SP
SV 108-3 L:SERVO LOCK
DM-70 113-1
L:SERVO LOCK
Q303
(VO-9850 ONLY) BC-18 102-3 L:ASS/INS
SV 108-2 L:SEARCH ×2
Q306, 308
Q307
H:VIDEO MUTE
D303, 304
SY 101-5 H:SP TAPE
105-3
IC7 +5V REG
+12V
TP201
Q10, 11 REC/EE +12V
+12V
REC EE +12V
TP8
(VO-9850 ONLY) BC-18 102-2 VIDEO EE
D14
D15
SY 101-6 L:VIDEO EE
Q42
VO-9800 ONLY
CHARACTER INSERT
Q402 BUFF
Q403 CLAMP
Q404 BUFF
Q412 BUFF
Q410 BUFF
Q405 LEVEL SHIFT
IC403 (1/3)
Q406
Q411 BUFF
IC403 (2/3)
RV403 CHARACTER MIX LEVEL
Q413
IC403 (3/3)
IC402 VIDEO AMP
Q414 MUTE
H:VIDEO MUTE
Q407
D402
H:VIDEO MUTE
Q409 PULSE GENERATOR
Q40 BUFF
GUARD BAND PULSE 112-3 DM-70
SYNC Y 112-1 DM-70
MIX C 111-4 DM-70
TP401
LINE VIDEO OUT 110-1
VIDEO OUT
TP402
MONITOR OUT 109-1
VIDEO MONITOR
SP VIDEO OUT 109-3
MONITOR OUT (FEMALE)
L:PB CHARA ON 101-3 SY
CHARA SIG 101-2 SY
CHARA BACK 101-1 SY
SEP SYNC 111-6 DM-70
L:SEARCH/STILL 108-4 SV
TP15
Q32, 33 BUFF
DUB Y 114-1
DUB OUT
ACC BURST GATE PULSE 111-3 DM-70
H:SP 107-3 MD-59
105-1 AU
3.58MHz 111-1 DM-70
DM-69
VO-9850 (1)
VO-9800 (1)

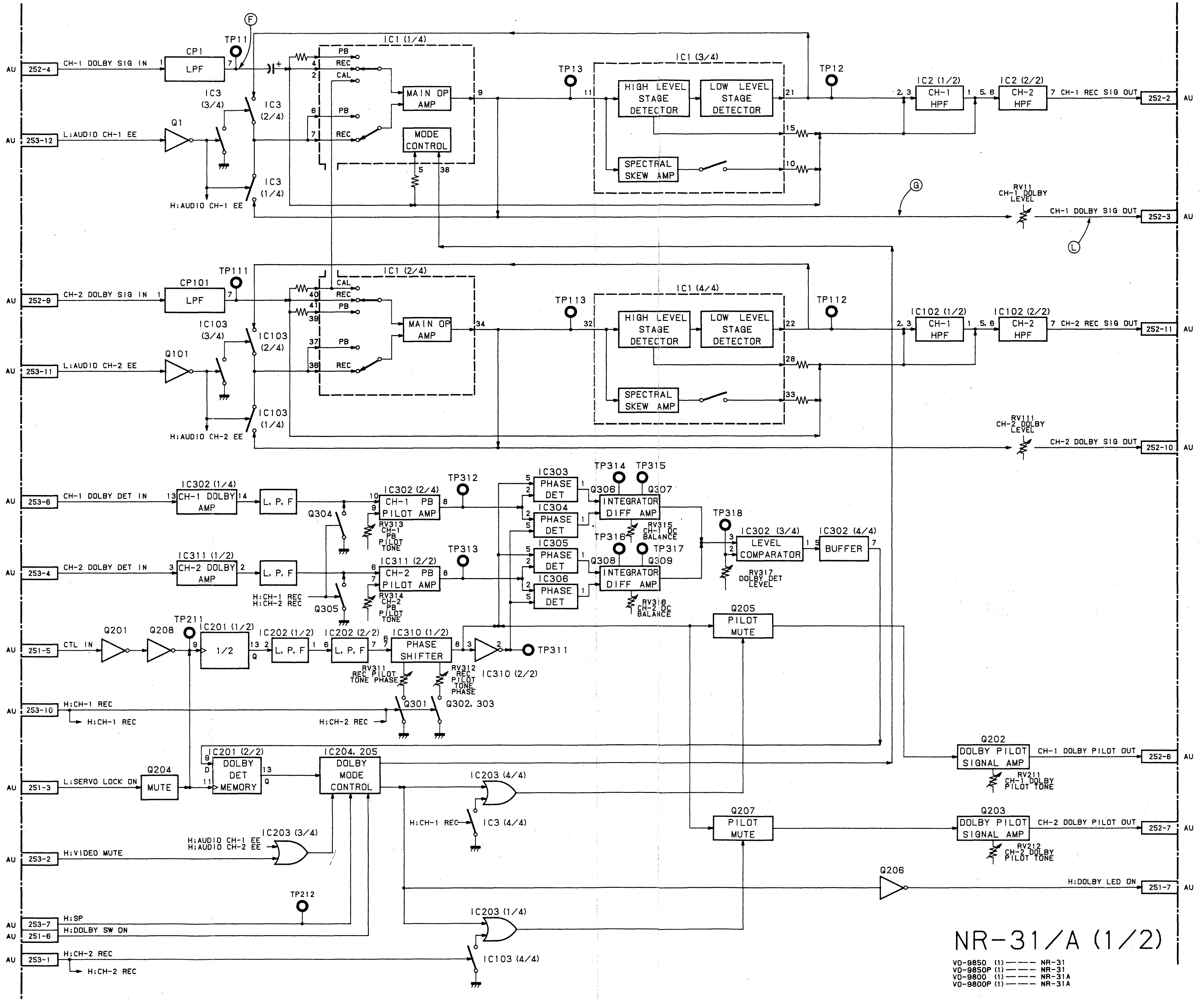
VIDEO SYSTEM
C PB PROCESSOR


DM 127-3 688K C
DM 125-4 ACC BURST GATE PULSE
SC IN
124-1 EXT SC
SV 122-1 L:TBC EN
MD 129-1 REF SC
DM 125-8 3.58MHz
SV 122-2 PB SYNC
SY 121-3 PB SYNC
DM 125-1
DM 126-1 SW PULSE
DM 126-2 REC/EE +12V
DM 127-1 V BLK
DM 127-8 L:SERVO LOCK
MD 129-3 L:DUB SW
DM 126-5 SYNC
DM 126-3 GUARD BAND PULSE
SV 122-4 L:SEARCH REV
IC514
MUTE
LIMITER AMP
SC DET
BUFF
TP519
IC519
TP529
Q508
BUFF
TP505
L:DUB SW
IC509
L511, 513
C599, 600, 618
BURST GATE LPF
T502, Q544, 545
EE ACC TUNING
RV508 ACC BURST GATE PHASE
RV509 ACC BURST GATE WIDTH
IC508
RV511 ACC BURST GATE LEVEL
PHASE MM
WIDTH MM
PHASE MM
WIDTH MM
RV510 APC BURST GATE LEVEL
RV506 APC BURST GATE PHASE
RV507 APC BURST GATE WIDTH
Q524, 525, 527
REC/EE+12V
L:SERVO LOCK
ACC TIME CONST
RV518 PB ACC LEVEL
TP509
IC512 (4/5)
BURST GATE
ACC DET
DC AMP
REF OSC
Q541, 542
SC INV
L510
C550
PHASE SHIFT
Q523, 537
REC/EE +12V
V BLK
APC GAIN SW
TP508
IC512 (5/5)
BURST GATE
APC DET
TIME CONST
C584, 585
L:DUB SW
D509
IC512 (1/5)
ACC AMP
TP515
RV519 CONVERTER BALANCE
IC512 (2/5)
FREQ CONV
FL504
BPF
IC512 (3/5)
CHROMA AMP
ACK
SW PULSE
IC506 (1/2)
FL502
DUB C LPF
DL506
300ns DELAY
IC506 (2/2)
AMP
MUTE
BUFF
TP504
RV504 DUB CHROMA LEVEL
REC/EE +12V
V BLK
Q532
D508-510
TP518
Q534, Q535
CHROMA MUTE
Q536
CHROMA BUFF
Q546
Q533
CHROMA DET
TP523
IC518
NOISE CANCELLER
RV523 CHROMA NOISE CANCEL
TP524
TP525
Q538
BUFF
DUB C 128-1
MIX C 125-3 DM
DUB OUT
TP516
Q528
C561, 562
FIELD MEMORY
Q530
TIME CONST
REC/EE +12V
V BLK
D506
D507
REC/EE +12V
C563, 564
FIELD MEMORY
Q529
TIME CONST
TP517
Q520
Y AMP
Q521
Y BUFF
Q549
Q547, 548
Y SLICE
RV513 DG COMPENSATOR
REC/EE +12V
D531
IC511 (1/2)
SYNC SEP
HALF H KILLER
SAMPLE HOLD
Q550
L:DUB SW
S501 APC
D503
TP512
TP513
COUNTER (PB)
DECODER
SW PULSE
ID
IC511 (2/2)
VCO
f/8
FREQ CONV
f/350~473 (REC)
RV505 VCO DC LEVEL
L:DUB SW
Q540
D539
FL503
BPF
RV517 4.27MHz LEVEL
Q522
4.27MHz AMP
TP531
Q543
4.27MHz BUFF
REF 4.27MHz 123-1 MD
DM-70
VO-9850 (1)
VO-9800 (1)

VIDEO SYSTEM
REC/PB AMPLIFIER,
ROTARY ERASE DRIVER


MD-59
183-6
REC Y RF
Q7
BUFF
RV7
CONV Y REC CURRENT (For NTSC)
HI Y REC CURRENT (For PAL)
TP3
TP4
RV8
SP Y REC
CURRENT
MD-59
183-2
H;SP
Q8
TP1
TP2
MD-59
183-4
REC C RF
RV1
C REC CURRENT
BC-16
182-5
L;REC EN
IC1
Y
BUFF
Y/C
MIXER
MUTING
CHROMA
BUFF
+12V
T1
IC2
CH-A
REC AMP
Q1
RV3
CH-A
REC FREQ
RESPONSE
+12V
T2
CH-A
VIDEO HEAD
186-5
186-6
186-4
T3
SL1
TP6
TP5
IC3
RF
MUTE
RV4
CH-A PB
FREQ RESPONSE
Q3
BUFF
Q4
MUTE
TP7
CH-A PB RF
184-5
DM-69 (For NTSC)
DM-72 (For PAL)
BC-16
182-3
L;CH-A REC AMP EN
BC-16
182-4
L;CH-B REC AMP EN
IC4
IC5
CH-B
REC AMP
Q2
RV5
CH-B
REC FREQ
RESPONSE
T4
CH-B
VIDEO HEAD
186-1
186-2
186-3
T5
SL2
TP8
TP9
IC6
RF
MUTE
RV6
CH-B PB
FREQ RESPONSE
Q5
BUFF
Q6
MUTE
TP10
CH-B PB RF
184-3
DM-69 (For NTSC)
DM-72 (For PAL)
MD-59
185-4
RE 4.27MHz
Q101
BUFF
TP101
CH-A
RV102
RE CURRENT
Q103
RE AMP
Q104, 105
RE OUTPUT
BUFF
CH-A RE
187-6
CH-A
ROTARY
ERASE
HEAD
TP102
CH-A RE
187-5
BC-16
182-1
SV-112
181-4
H;CH-A RE MUTE
H;CH-A RE MUTE
D105, 106
Q102
CH-B
RV101
RE CURRENT
Q107
RE AMP
Q108, 109
RE OUTPUT
BUFF
CH-B RE
187-2
CH-B
ROTARY
ERASE
HEAD
TP103
CH-B RE
187-1
BC-16
182-2
SV-112
181-5
H;CH-B RE MUTE
H;CH-B RE MUTE
D107, 108
Q106
RP-40/B
VO-9850 (1)
VO-9850P (1)

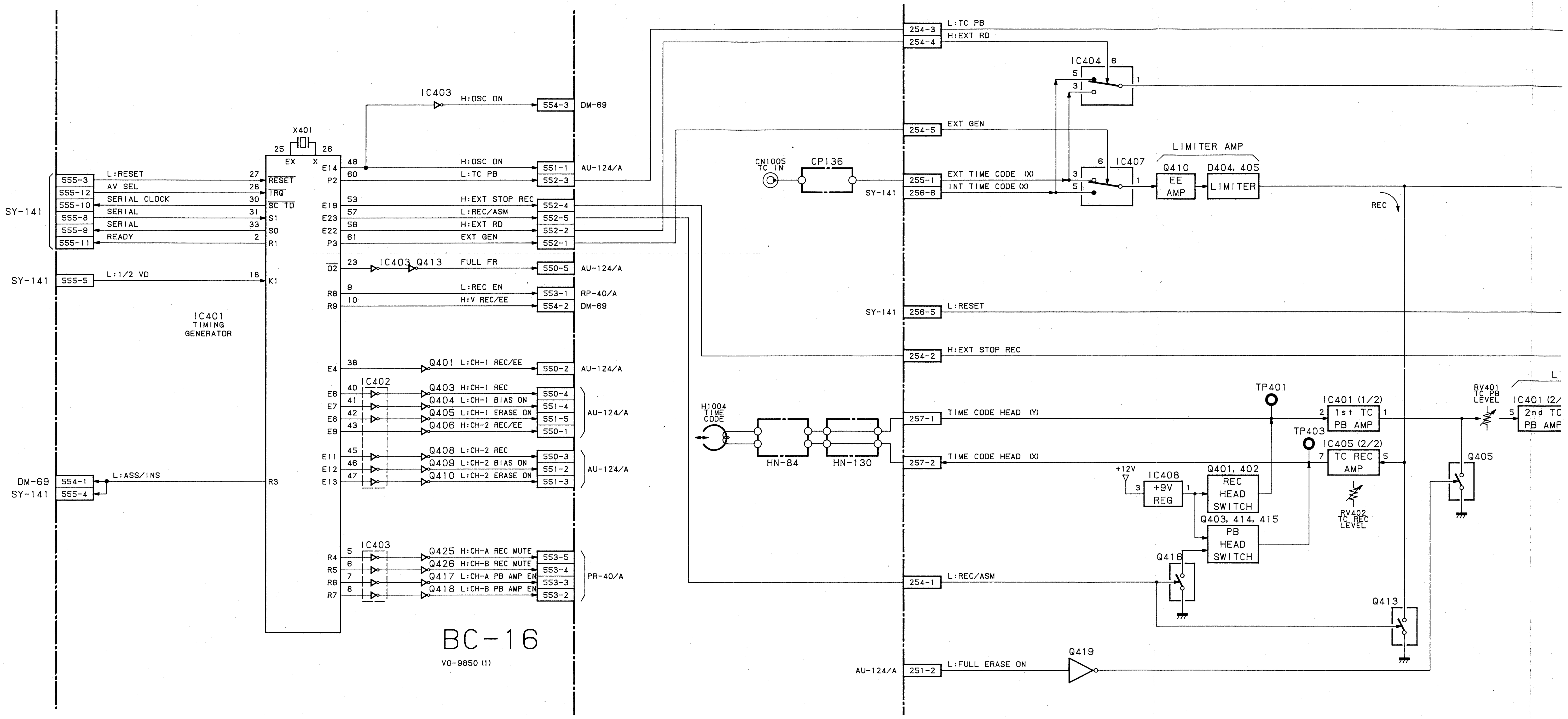
AUDIO SYSTEM
DOLBY NR, NR PILOT REC/PB


AU 252-4 CH-1 DOLBY SIG IN
CP1 LPF
TP11
F
IC1 (1/4)
PB
REC
CAL
MAIN OP AMP
MODE CONTROL
IC3 (3/4)
IC3 (2/4)
IC3 (1/4)
Q1
AU 253-12 L:AUDIO CH-1 EE
H:AUDIO CH-1 EE
TP13
IC1 (3/4)
HIGH LEVEL STAGE DETECTOR
LOW LEVEL STAGE DETECTOR
SPECTRAL SKEW AMP
TP12
IC2 (1/2) CH-1 HPF
IC2 (2/2) CH-2 HPF
CH-1 REC SIG OUT 252-2 AU
G
RV11 CH-1 DOLBY LEVEL
CH-1 DOLBY SIG OUT 252-3 AU
L
AU 252-9 CH-2 DOLBY SIG IN
CP101 LPF
TP111
IC1 (2/4)
IC103 (3/4)
IC103 (2/4)
IC103 (1/4)
Q101
AU 253-11 L:AUDIO CH-2 EE
H:AUDIO CH-2 EE
TP113
IC1 (4/4)
TP112
IC102 (1/2) CH-1 HPF
IC102 (2/2) CH-2 HPF
CH-2 REC SIG OUT 252-11 AU
RV111 CH-2 DOLBY LEVEL
CH-2 DOLBY SIG OUT 252-10 AU
AU 253-6 CH-1 DOLBY DET IN
IC302 (1/4) CH-1 DOLBY AMP
L. P. F
IC302 (2/4) CH-1 PB PILOT AMP
Q304
RV313 CH-1 PB PILOT TONE
TP312
IC303 PHASE DET
IC304 PHASE DET
IC305 PHASE DET
IC306 PHASE DET
TP314 TP315
Q306 Q307
INTEGRATOR DIFF AMP
RV315 CH-1 DC BALANCE
TP316 TP317
Q308 Q309
RV316 CH-2 DC BALANCE
TP318
IC302 (3/4) LEVEL COMPARATOR
IC302 (4/4) BUFFER
RV317 DOLBY DET LEVEL
AU 253-4 CH-2 DOLBY DET IN
IC311 (1/2) CH-2 DOLBY AMP
IC311 (2/2) CH-2 PB PILOT AMP
TP313
H:CH-1 REC
H:CH-2 REC
Q305
RV314 CH-2 PB PILOT TONE
AU 251-5 CTL IN
Q201 Q208
TP211
IC201 (1/2) 1/2
IC202 (1/2) L. P. F
IC202 (2/2) L. P. F
IC310 (1/2) PHASE SHIFTER
RV311 REC PILOT TONE PHASE
RV312 REC PILOT TONE PHASE
IC310 (2/2)
TP311
Q301
Q302, 303
Q205 PILOT MUTE
AU 253-10 H:CH-1 REC
H:CH-1 REC
H:CH-2 REC
IC201 (2/2) DOLBY DET MEMORY
IC204, 205 DOLBY MODE CONTROL
AU 251-3 L:SERVO LOCK ON
Q204 MUTE
IC203 (4/4)
H:CH-1 REC
IC3 (4/4)
Q207 PILOT MUTE
Q202 DOLBY PILOT SIGNAL AMP
CH-1 DOLBY PILOT OUT 252-6 AU
RV211 CH-1 DOLBY PILOT TONE
Q203 DOLBY PILOT SIGNAL AMP
CH-2 DOLBY PILOT OUT 252-7 AU
RV212 CH-2 DOLBY PILOT TONE
IC203 (3/4)
H:AUDIO CH-1 EE
H:AUDIO CH-2 EE
AU 253-2 H:VIDEO MUTE
Q206
H:DOLBY LED ON 251-7 AU
TP212
AU 253-7 H:SP
AU 251-6 H:DOLBY SW ON
IC203 (1/4)
AU 253-1 H:CH-2 REC
H:CH-2 REC
IC103 (4/4)

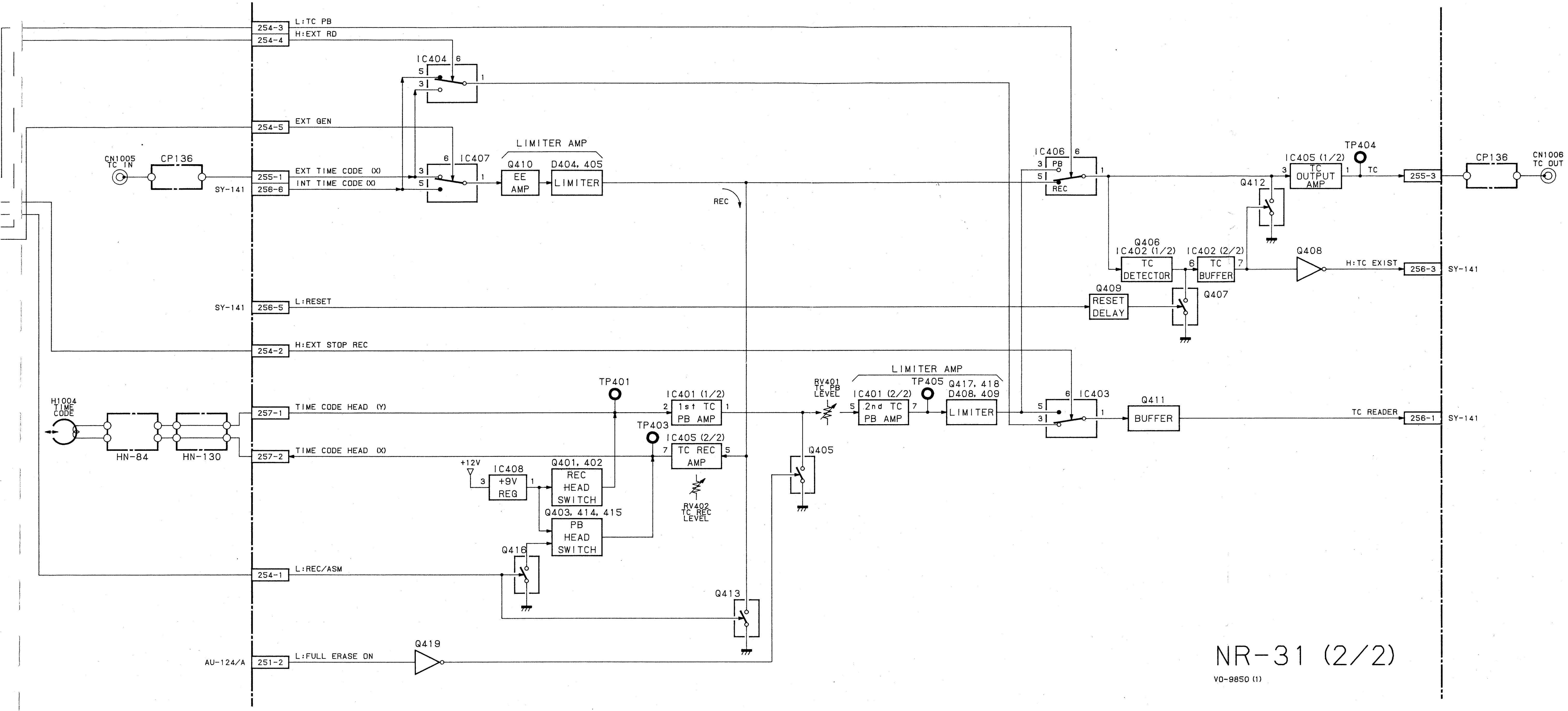
NR-31/A (1/2)

VO-9850 (1) ——— NR-31
VO-9850P (1) ——— NR-31
VO-9800 (1) ——— NR-31A
VO-9800P (1) ——— NR-31A

AUDIO/TIME CODE SYSTEM
MODE CONTROL,
TIME CODE REC/PB



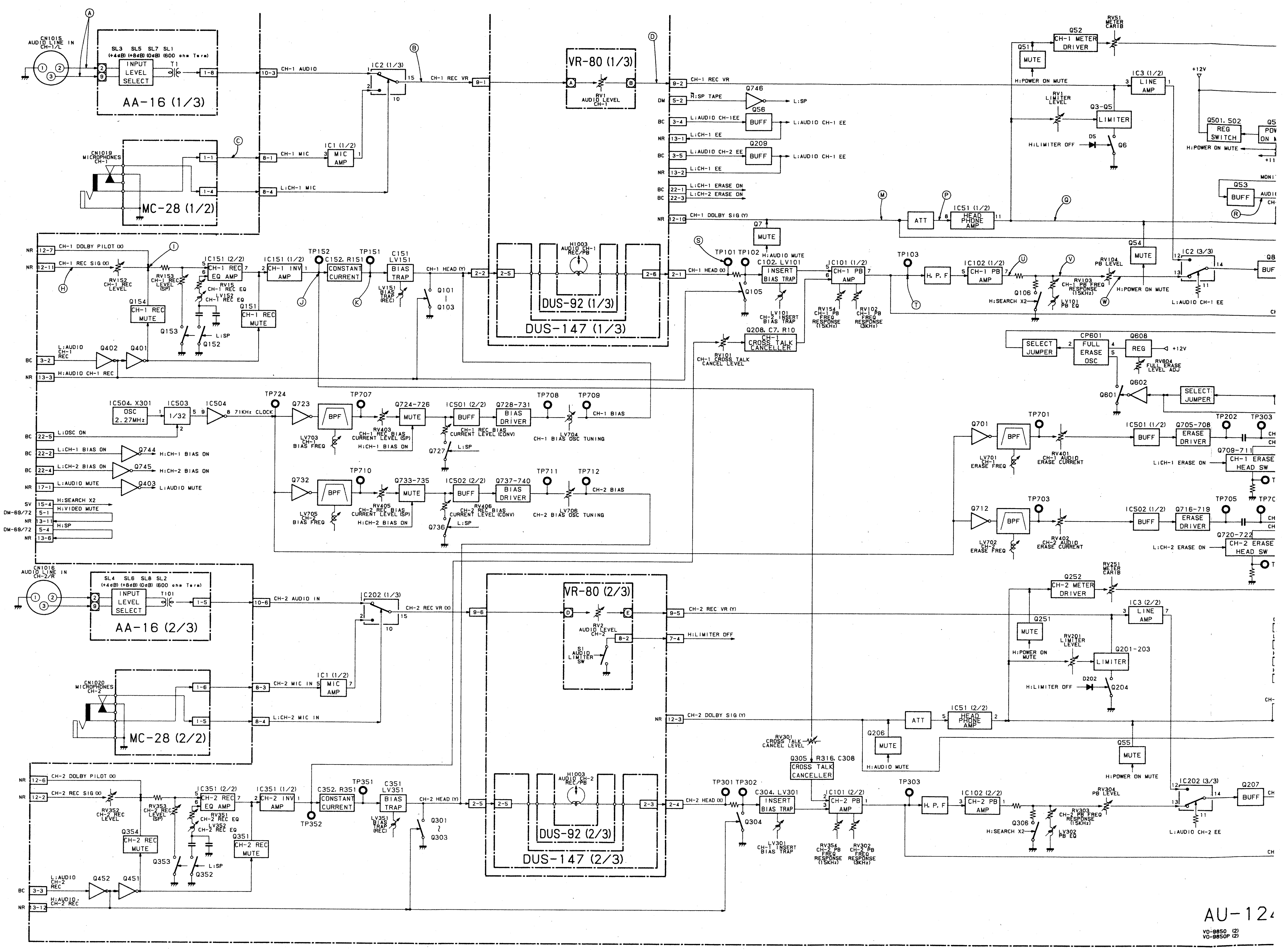
SY-141
S55-3 L:RESET 27 RESET
S55-12 AV SEL 28 TRQ
S55-10 SERIAL CLOCK 30 SC TO
S55-8 SERIAL 31 S1
S55-9 SERIAL 33 S0
S55-11 READY 2 R1
SY-141 S55-5 L:1/2 VD 18 K1
IC401 TIMING GENERATOR
DM-69 S54-1
SY-141 S55-4
L:ASS/INS R3
X401 25 26 EX X
E14 48 P2 60
IC403 H:OSC ON S54-3 DM-69
H:OSC ON S51-1 AU-124/A
L:TC PB S52-3
E19 53 H:EXT STOP REC S52-4
E23 57 L:REC/ASM S52-5
E22 56 H:EXT RD S52-2
P3 61 EXT GEN S52-1
O2 23 IC403 Q413 FULL FR S50-5 AU-124/A
R8 9 L:REC EN S53-1 RP-40/A
R9 10 H:V REC/EE S54-2 DM-69
E4 38 Q401 L:CH-1 REC/EE S50-2 AU-124/A
IC402
E6 40 Q403 H:CH-1 REC S50-4
E7 41 Q404 L:CH-1 BIAS ON S51-4
E8 42 Q405 L:CH-1 ERASE ON S51-5
E9 43 Q406 H:CH-2 REC/EE S50-1
AU-124/A
E11 45 Q408 L:CH-2 REC S50-3
E12 46 Q409 L:CH-2 BIAS ON S51-2
E13 47 Q410 L:CH-2 ERASE ON S51-3
AU-124/A
IC403
R4 5 Q425 H:CH-A REC MUTE S53-5
R5 6 Q426 H:CH-B REC MUTE S53-4
R6 7 Q417 L:CH-A PB AMP EN S53-3
R7 8 Q418 L:CH-B PB AMP EN S53-2
PR-40/A
BC-16
VO-9850 (1)
254-3 L:TC PB
254-4 H:EXT RD
IC404 6 5 3 1
254-5 EXT GEN
CN1005 TC IN
CP136
SY-141
255-1 EXT TIME CODE (X)
256-6 INT TIME CODE (X)
IC407 6 3 5 1
LIMITER AMP
Q410 EE AMP
D404, 405 LIMITER
REC
SY-141 256-5 L:RESET
254-2 H:EXT STOP REC
H1004 TIME CODE
HN-84
HN-130
257-1 TIME CODE HEAD (Y)
257-2 TIME CODE HEAD (X)
TP401
IC401 (1/2) 2 1st TC PB AMP 1
TP403
IC405 (2/2) 7 TC REC AMP 5
RV402 TC REC LEVEL
RV401 TC PB LEVEL
IC401 (2/ 5 2nd TC PB AMP
L
Q405
+12V
IC408 3 +9V REG 1
Q401, 402 REC HEAD SWITCH
Q403, 414, 415 PB HEAD SWITCH
Q416
254-1 L:REC/ASM
Q413
Q419
AU-124/A 251-2 L:FULL ERASE ON

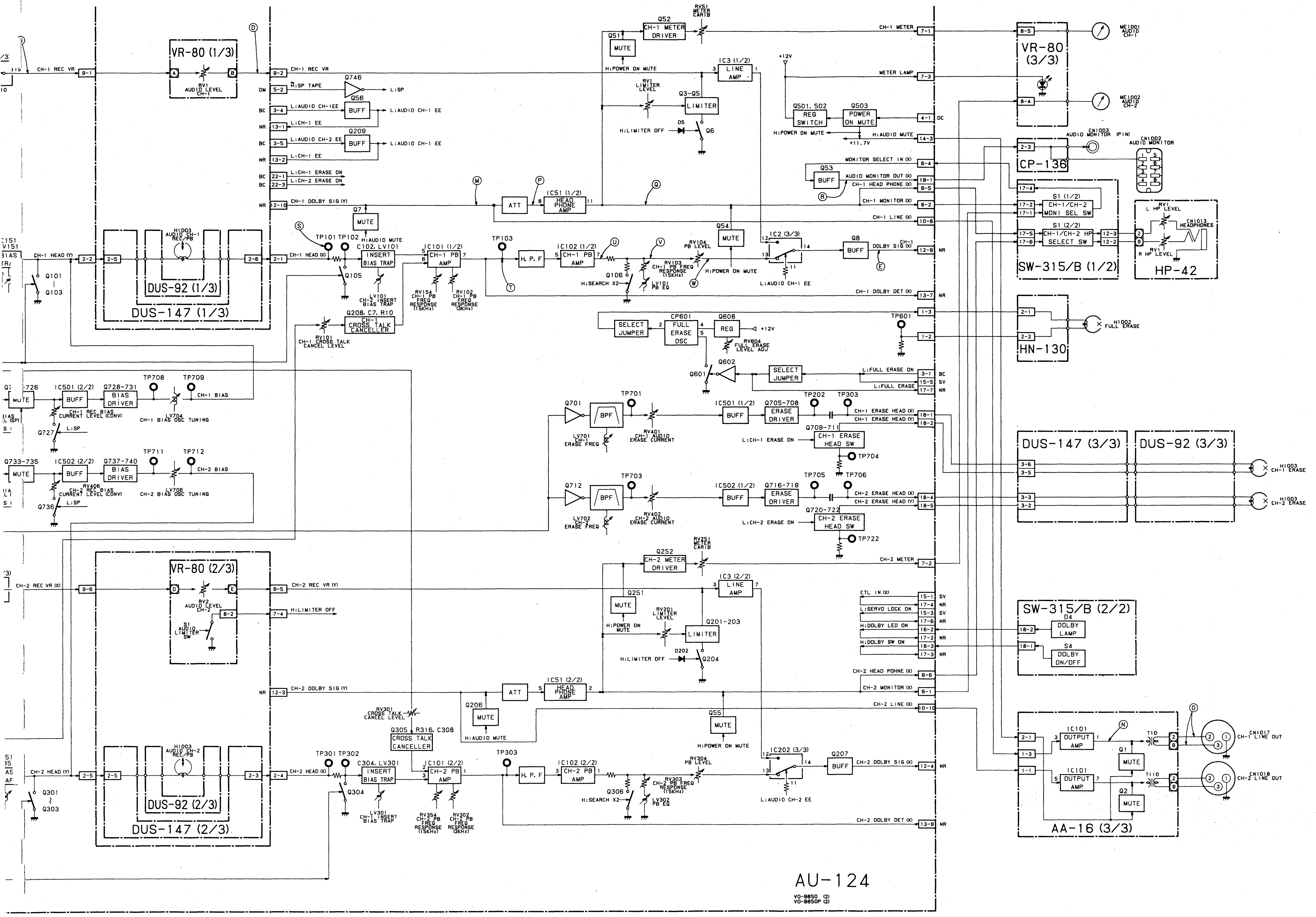

254-3
L:TC PB
254-4
H:EXT RD
IC404
6
5
3
1
254-5
EXT GEN
LIMITER AMP
CN1005
TC IN
CP136
255-1
EXT TIME CODE (X)
256-6
INT TIME CODE (X)
SY-141
IC407
Q410
EE
AMP
D404, 405
LIMITER
REC
SY-141
256-5
L:RESET
254-2
H:EXT STOP REC
H1004
TIME
CODE
HN-84
HN-130
257-1
TIME CODE HEAD (Y)
257-2
TIME CODE HEAD (X)
TP401
IC401 (1/2)
1st TC
PB AMP
TP403
IC405 (2/2)
TC REC
AMP
RV402
TC REC
LEVEL
+12V
IC408
+9V
REG
Q401, 402
REC
HEAD
SWITCH
Q403, 414, 415
PB
HEAD
SWITCH
Q416
254-1
L:REC/ASM
Q413
AU-124/A
251-2
L:FULL ERASE ON
Q419
RV401
TC PB
LEVEL
LIMITER AMP
TP405
IC401 (2/2)
2nd TC
PB AMP
Q417, 418
D408, 409
LIMITER
Q405
IC406
PB
REC
IC403
Q411
BUFFER
TC READER
256-1
SY-141
IC405 (1/2)
TC
OUTPUT
AMP
TP404
TC
255-3
CP136
CN1006
TC OUT
Q412
Q406
IC402 (1/2)
TC
DETECTOR
IC402 (2/2)
TC
BUFFER
Q408
H:TC EXIST
256-3
SY-141
Q409
RESET
DELAY
Q407

NR-31 (2/2)

VD-9850 (1)

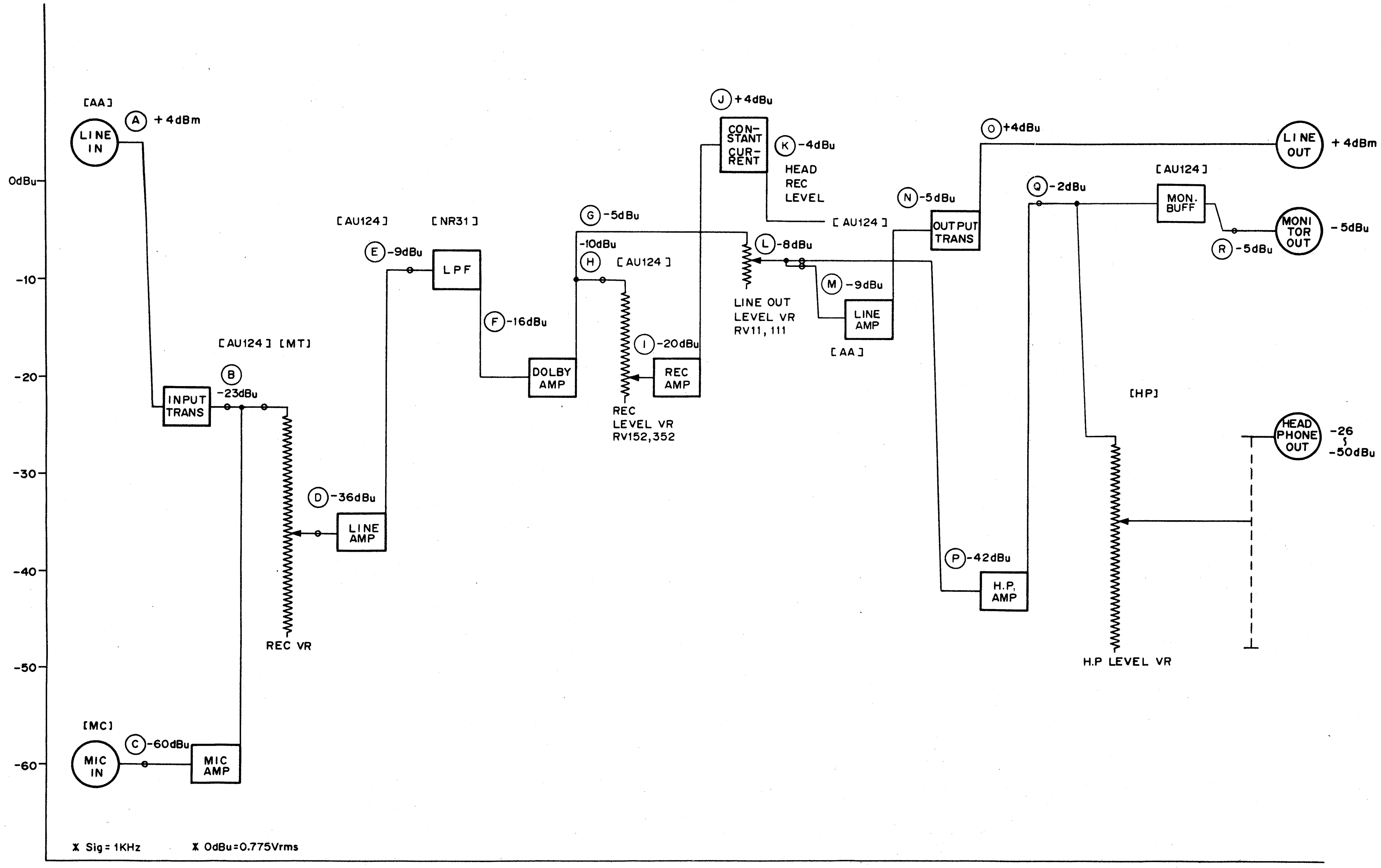
AUDIO SYSTEM
REC/PB AMPLIFIER
ERASE/BIAS OSCILLATOR

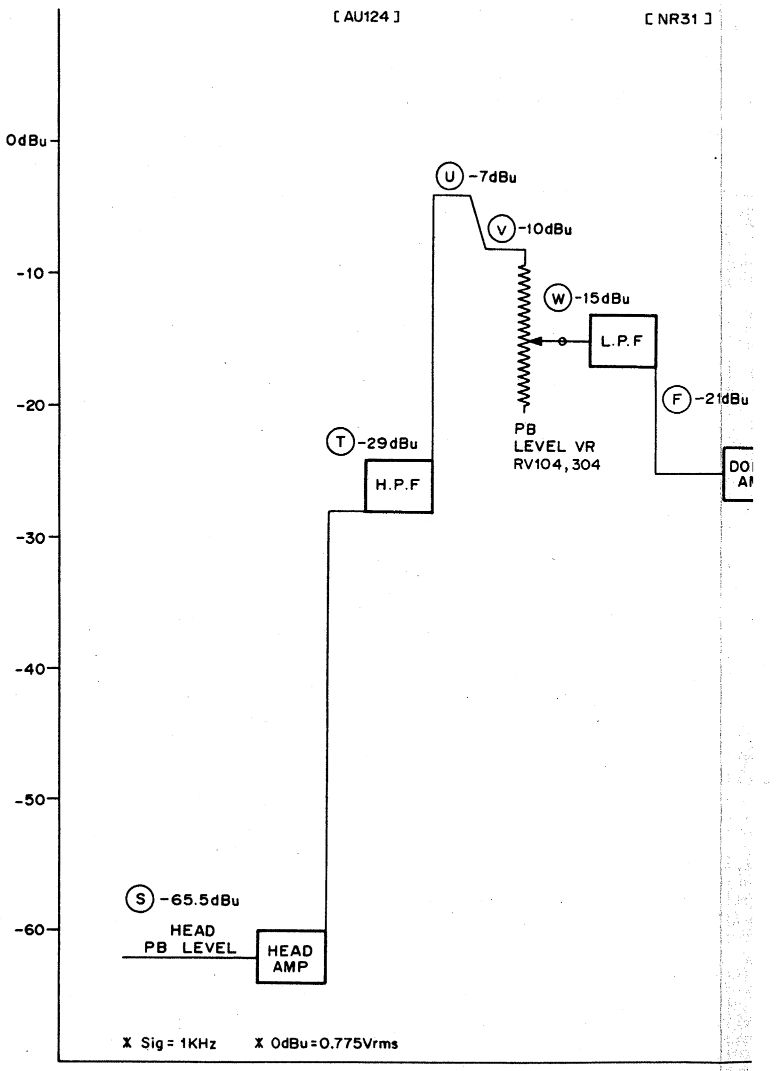

CN1015 AUDIO LINE IN CH-1/L
INPUT LEVEL SELECT
AA-16 (1/3)
CN1019 MICROPHONES CH-1
MC-28 (1/2)
CH-1 AUDIO
IC2 (1/3)
CH-1 REC VR
IC1 (1/2) MIC AMP
L:CH-1 MIC
VR-80 (1/3)
RV1 AUDIO LEVEL CH-1
CH-1 DOLBY PILOT
CH-1 REC SIG
RV152 CH-1 REC LEVEL
IC151 (2/2) CH-1 REC EQ AMP
IC151 (1/2) CH-1 INV AMP
C152, R151 CONSTANT CURRENT
LV151 BIAS TRAP
CH-1 HEAD
Q101 Q103
Q154 CH-1 REC MUTE
Q151 CH-1 REC MUTE
Q402 Q401
L:AUDIO CH-1 REC
H:AUDIO CH-1 REC
DUS-92 (1/3)
DUS-147 (1/3)
H1003 AUDIO CH-1 REC/PB
CH-1 REC VR
H:SP TAPE
Q746
L:SP
L:AUDIO CH-1 EE
Q56 BUFF
Q209 BUFF
L:CH-1 EE
L:AUDIO CH-2 EE
L:CH-1 ERASE ON
L:CH-2 ERASE ON
CH-1 DOLBY SIG
Q7 MUTE
H:AUDIO MUTE
TP101 TP102
C102, LV101 INSERT BIAS TRAP
Q105
IC101 (1/2) CH-1 PB AMP
RV154 CH-1 PB FREQ RESPONSE (15KHz)
RV102 CH-1 PB FREQ RESPONSE (3KHz)
Q208, C7, R10 CH-1 CROSS TALK CANCELLER
RV101 CH-1 CROSS TALK CANCEL LEVEL
TP103
H. P. F
IC102 (1/2) CH-1 PB AMP
Q106
H:SEARCH X2
RV101 PB EQ
RV103 CH-1 PB FREQ RESPONSE (15KHz)
RV104 PB LEVEL
Q54 MUTE
H:POWER ON MUTE
IC2 (3/3)
L:AUDIO CH-1 EE
ATT
IC51 (1/2) HEAD PHONE AMP
Q51 MUTE
Q52 CH-1 METER DRIVER
RV51 METER CARIB
IC3 (1/2) LINE AMP
RV1 LIMITER LEVEL
Q3-Q5 LIMITER
H:LIMITER OFF
D5 Q6
Q501, 502 REG SWITCH
H:POWER ON MUTE
Q53 BUFF
CP601 FULL ERASE OSC
SELECT JUMPER
Q608 REG
RV604 FULL ERASE LEVEL ADJ
Q601 Q602
IC504, X301 OSC 2.27MHz
IC503 1/32
IC504
71KHz CLOCK
TP724
Q723 BPF
LV703 CH-1 BIAS FREQ
TP707
RV403 CH-1 REC BIAS CURRENT LEVEL (SP)
H:CH-1 BIAS ON
Q724-726 MUTE
IC501 (2/2) BUFF
Q728-731 BIAS DRIVER
TP708 TP709
LV704 CH-1 BIAS OSC TUNING
CH-1 BIAS
Q727 L:SP
L:OSC ON
L:CH-1 BIAS ON
L:CH-2 BIAS ON
Q744 H:CH-1 BIAS ON
Q745 H:CH-2 BIAS ON
L:AUDIO MUTE
Q403 L:AUDIO MUTE
H:SEARCH X2
H:VIDEO MUTE
H:SP
TP710
Q732 BPF
LV705 CH-2 BIAS FREQ
RV405 CH-2 REC BIAS CURRENT LEVEL (SP)
H:CH-2 BIAS ON
Q733-735 MUTE
IC502 (2/2) BUFF
Q737-740 BIAS DRIVER
RV406 CH-2 REC BIAS CURRENT LEVEL (CONV)
TP711 TP712
LV706 CH-2 BIAS OSC TUNING
CH-2 BIAS
Q736 L:SP
TP701
Q701 BPF
LV701 CH-1 ERASE FREQ
RV401 CH-1 AUDIO ERASE CURRENT
IC501 (1/2) BUFF
Q705-708 ERASE DRIVER
Q709-711 CH-1 ERASE HEAD SW
L:CH-1 ERASE ON
TP202 TP303
TP703
Q712 BPF
LV702 CH-2 ERASE FREQ
RV402 CH-2 AUDIO ERASE CURRENT
IC502 (1/2) BUFF
Q716-719 ERASE DRIVER
Q720-722 CH-2 ERASE HEAD SW
L:CH-2 ERASE ON
TP705
CN1016 AUDIO LINE IN CH-2/R
INPUT LEVEL SELECT
AA-16 (2/3)
CN1020 MICROPHONES CH-2
MC-28 (2/2)
CH-2 AUDIO IN
IC202 (1/3)
CH-2 REC VR
CH-2 MIC IN
IC1 (1/2) MIC AMP
L:CH-2 MIC IN
VR-80 (2/3)
RV2 AUDIO LEVEL CH-2
S1 AUDIO LIMITER SW
H:LIMITER OFF
CH-2 DOLBY SIG
CH-2 DOLBY PILOT
CH-2 REC SIG
RV352 CH-2 REC LEVEL
IC351 (2/2) CH-2 REC EQ AMP
IC351 (1/2) CH-2 INV AMP
C352, R351 CONSTANT CURRENT
TP351 TP352
C351 LV351 BIAS TRAP
CH-2 HEAD
Q301 Q303
Q354 CH-2 REC MUTE
Q351 CH-2 REC MUTE
Q353 Q352
Q452 Q451
L:AUDIO CH-2 REC
H:AUDIO CH-2 REC
DUS-92 (2/3)
DUS-147 (2/3)
H1003 AUDIO CH-2 REC/PB
RV301 CROSS TALK CANCEL LEVEL
Q305, R316, C308 CROSS TALK CANCELLER
Q206 MUTE
H:AUDIO MUTE
TP301 TP302
C304, LV301 INSERT BIAS TRAP
Q304
IC101 (2/2) CH-2 PB AMP
RV354 CH-2 PB FREQ RESPONSE (15KHz)
RV302 CH-2 PB FREQ RESPONSE (3KHz)
TP303
H. P. F
IC102 (2/2) CH-2 PB AMP
Q306
RV302 PB EQ
RV303 CH-2 PB FREQ RESPONSE (15KHz)
RV304 PB LEVEL
Q55 MUTE
IC202 (3/3)
Q207 BUFF
L:AUDIO CH-2 EE
ATT
IC51 (2/2) HEAD PHONE AMP
Q251 MUTE
Q252 CH-2 METER DRIVER
RV251 METER CARIB
IC3 (2/2) LINE AMP
RV201 LIMITER LEVEL
Q201-203 LIMITER
D202 Q204
H:LIMITER OFF
AU-12
VD-9850 (2)
VD-9850P (2)

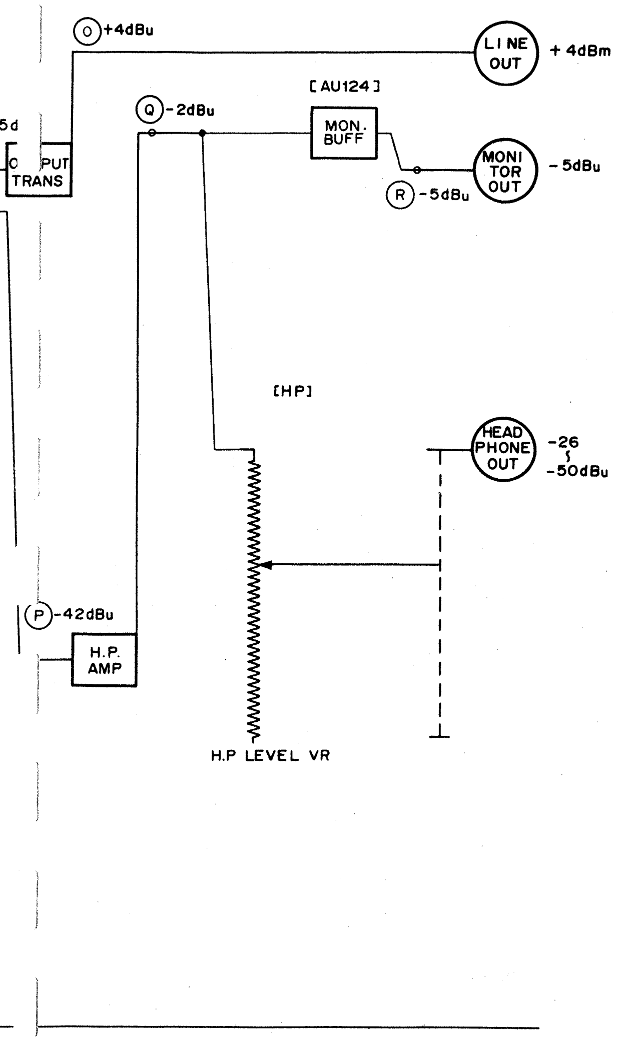

VR-80 (1/3)
RV1 AUDIO LEVEL CH-1
CH-1 REC VR
9-1
9-2
DM 5-2 H:SP TAPE
Q746
L:SP
BC 3-4 L:AUDIO CH-1EE
Q56 BUFF
L:AUDIO CH-1 EE
NR 13-1 L:CH-1 EE
BC 3-5 L:AUDIO CH-2 EE
Q209 BUFF
L:AUDIO CH-1 EE
NR 13-2 L:CH-1 EE
BC 22-1 L:CH-1 ERASE ON
BC 22-3 L:CH-2 ERASE ON
NR 12-10 CH-1 DOLBY SIG (Y)
Q7 MUTE
H:AUDIO MUTE
H1003 AUDIO CH-1 REC/PB
DUS-92 (1/3)
DUS-147 (1/3)
CH-1 HEAD (Y)
2-2
2-5
2-6
2-1
CH-1 HEAD (X)
Q101 | Q103
TP101 TP102
Q105
C102, LV101
INSERT BIAS TRAP
LV101 CH-2 INSERT BIAS TRAP
IC101 (1/2) CH-1 PB AMP
RV154 CH-1 PB FREQ RESPONSE (15KHz)
RV102 CH-1 PB FREQ RESPONSE (3KHz)
Q208, C7, R10
CH-1 CROSS TALK CANCELLER
RV101 CH-1 CROSS TALK CANCEL LEVEL
TP103
H. P. F
IC102 (1/2) CH-1 PB AMP
Q106
H:SEARCH X2
RV103 CH-1 PB FREQ RESPONSE (15KHz)
LV101 PB EQ
RV104 PB LEVEL
Q54 MUTE
H:POWER ON MUTE
IC2 (3/3)
L:AUDIO CH-1 EE
Q8 BUFF
CH-1 DOLBY SIG (X)
12-8 NR
CH-1 DOLBY DET (X)
13-7 NR
ATT
IC51 (1/2) HEAD PHONE AMP
Q51 MUTE
Q52 CH-1 METER DRIVER
RV51 METER CARIB
H:POWER ON MUTE
CH-1 METER 7-1
IC3 (1/2) LINE AMP
RV1 LIMITER LEVEL
Q3-Q5 LIMITER
D5
H:LIMITER OFF
Q6
+12V
METER LAMP 7-3
Q501, 502 REG SWITCH
Q503 POWER ON MUTE
4-1 DC
H:POWER ON MUTE
+11.7V
H:AUDIO MUTE 14-3
MONITOR SELECT IN (X) 6-4
Q53 BUFF
AUDIO MONITOR OUT (X) 19-1
CH-1 HEAD PHONE (X) 6-5
CH-1 MONITOR (X) 6-2
CH-1 LINE (X) 10-8
CP601 FULL ERASE OSC
SELECT JUMPER
Q608 REG
+12V
RV604 FULL ERASE LEVEL ADJ
TP601
1-3
1-2
Q602
Q601
SELECT JUMPER
L:FULL ERASE ON 3-1 BC
15-5 SV
L:FULL ERASE 17-7 NR
Q7 -726 MUTE
IC501 (2/2) BUFF
Q728-731 BIAS DRIVER
CH-1 REC BIAS CURRENT LEVEL (CONV)
Q727 L:SP
TP708 TP709
LV704 CH-1 BIAS OSC TUNING
CH-1 BIAS
Q733-735 MUTE
IC502 (2/2) BUFF
Q737-740 BIAS DRIVER
RV406 CH-2 REC BIAS CURRENT LEVEL (CONV)
Q736 L:SP
TP711 TP712
LV706 CH-2 BIAS OSC TUNING
CH-2 BIAS
Q701 BPF
TP701
LV701 CH-1 ERASE FREQ
RV401 CH-1 AUDIO ERASE CURRENT
IC501 (1/2) BUFF
Q705-708 ERASE DRIVER
TP202 TP303
CH-1 ERASE HEAD (X) 18-1
CH-1 ERASE HEAD (Y) 18-2
Q709-711 CH-1 ERASE HEAD SW
L:CH-1 ERASE ON
TP704
Q712 BPF
TP703
LV702 CH-2 ERASE FREQ
RV402 CH-2 AUDIO ERASE CURRENT
IC502 (1/2) BUFF
Q716-719 ERASE DRIVER
TP705 TP706
CH-2 ERASE HEAD (X) 18-4
CH-2 ERASE HEAD (Y) 18-5
Q720-722 CH-2 ERASE HEAD SW
L:CH-2 ERASE ON
TP722
VR-80 (2/3)
CH-2 REC VR (X) 9-6
RV2 AUDIO LEVEL CH-2
9-5 CH-2 REC VR (Y)
8-2
7-4 H:LIMITER OFF
S1 AUDIO LIMITER SW
NR 12-3 CH-2 DOLBY SIG (Y)
RV301 CROSS TALK CANCEL LEVEL
Q305, R316, C308 CROSS TALK CANCELLER
Q206 MUTE
H:AUDIO MUTE
ATT
IC51 (2/2) HEAD PHONE AMP
Q252 CH-2 METER DRIVER
RV251 METER CARIB
CH-2 METER 7-2
IC3 (2/2) LINE AMP
Q251 MUTE
H:POWER ON MUTE
RV201 LIMITER LEVEL
Q201-203 LIMITER
D202
H:LIMITER OFF
Q204
CTL IN (X) 15-1 SV
17-4 NR
L:SERVO LOCK ON 15-3 SV
17-6 NR
H:DOLBY LED ON 16-2
17-2 NR
H:DOLBY SW ON 16-3
17-3 NR
CH-2 HEAD POHNE (X) 6-6
CH-2 MONITOR (X) 6-1
CH-2 LINE (X) 10-10
Q55 MUTE
H:POWER ON MUTE
H1003 AUDIO CH-2 REC/PB
DUS-92 (2/3)
DUS-147 (2/3)
CH-2 HEAD (Y)
2-5
2-3
2-4
CH-2 HEAD (X)
Q301 ~ Q303
TP301 TP302
Q304
C304, LV301 INSERT BIAS TRAP
LV301 CH-1 INSERT BIAS TRAP
IC101 (2/2) CH-2 PB AMP
RV354 CH-2 PB FREQ RESPONSE (15KHz)
RV302 CH-2 PB FREQ RESPONSE (3KHz)
TP303
H. P. F
IC102 (2/2) CH-2 PB AMP
Q306
H:SEARCH X2
RV303 CH-2 PB FREQ RESPONSE (15KHz)
LV302 PB EQ
RV304 PB LEVEL
IC202 (3/3)
L:AUDIO CH-2 EE
Q207 BUFF
CH-2 DOLBY SIG (X) 12-4 NR
CH-2 DOLBY DET (X) 13-9 NR
AU-124
VO-9850 (2)
VO-9850P (2)
VR-80 (3/3)
8-5
8-4
ME1001 AUDIO CH-1
ME1002 AUDIO CH-2
CN1003 AUDIO MONITOR (PIN)
CN1002 AUDIO MONITOR
CP-136
2-3
17-4
S1 (1/2) CH-1/CH-2 MONI SEL SW
17-2
17-1
S1 (2/2) CH-1/CH-2 HP SELECT SW
17-5
17-6
12-3
12-2
SW-315/B (1/2)
RV1 L HP LEVEL
RV1 R HP LEVEL
CN1013 HEADPHONES
HP-42
HN-130
2-1
2-2
H1002 FULL ERASE
DUS-147 (3/3)
DUS-92 (3/3)
3-6
3-5
3-3
3-2
H1003 CH-1 ERASE
H1003 CH-2 ERASE
SW-315/B (2/2)
D4 DOLBY LAMP
18-2
18-1
S4 DOLBY ON/OFF
AA-16 (3/3)
IC101 OUTPUT AMP
Q1 MUTE
Q2 MUTE
T10
T110
CN1017 CH-1 LINE OUT
CN1018 CH-2 LINE OUT
D
M
P
Q
R
S
T
U
V
W
E
N

AUDIO LEVEL DIAGRAM

Audio Level Diagram EE, REC

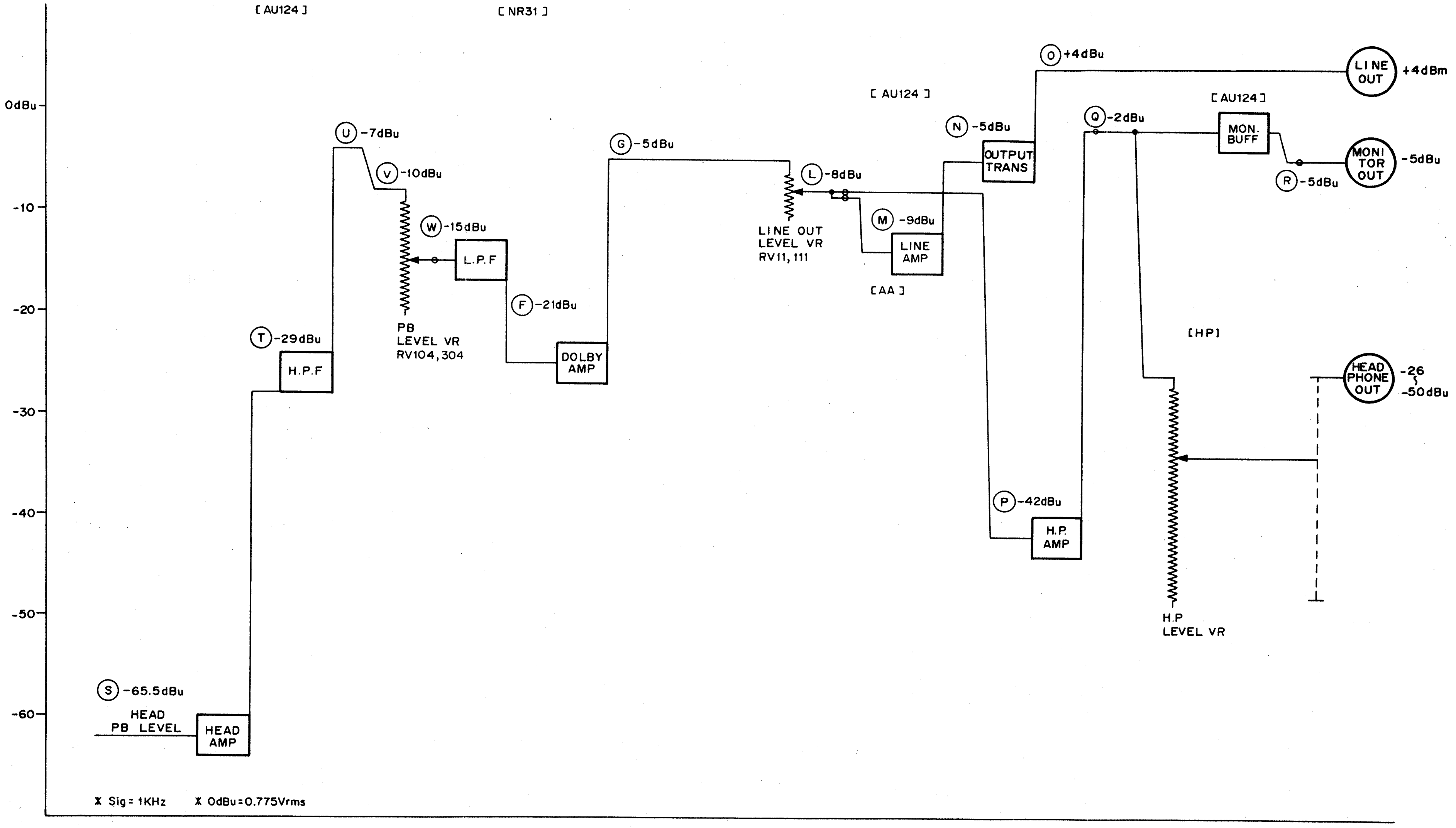

0dBu
-10
-20
-30
-40
-50
-60
[AA]
(A) +4dBm
LINE IN
[AU124] [MT]
(B) -23dBu
INPUT TRANS
REC VR
(D) -36dBu
LINE AMP
[MC]
(C) -60dBu
MIC IN
MIC AMP
[AU124]
(E) -9dBu
[NR31]
LPF
(F) -16dBu
DOLBY AMP
(G) -5dBu
-10dBu
(H)
[AU124]
(I) -20dBu
REC AMP
REC LEVEL VR RV152,352
(J) +4dBu
CON-STANT CUR-RENT
(K) -4dBu
HEAD REC LEVEL
[AU124]
(L) -8dBu
LINE OUT LEVEL VR RV11, 111
(M) -9dBu
LINE AMP
[AA]
(N) -5dBu
OUTPUT TRANS
(O) +4dBu
LINE OUT
+4dBm
(Q) -2dBu
[AU124]
MON. BUFF
(R) -5dBu
MONI TOR OUT
-5dBu
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
(P) -42dBu
H.P. AMP
H.P LEVEL VR
※ Sig=1KHz
※ 0dBu=0.775Vrms


[AU124]
[NR31]
0dBu
-10
-20
-30
-40
-50
-60
(U) -7dBu
(V) -10dBu
(W) -15dBu
L.P.F
PB LEVEL VR RV104,304
(F) -21dBu
(T) -29dBu
H.P.F
(S) -65.5dBu
HEAD PB LEVEL
HEAD AMP
※ Sig=1KHz
※ 0dBu=0.775Vrms



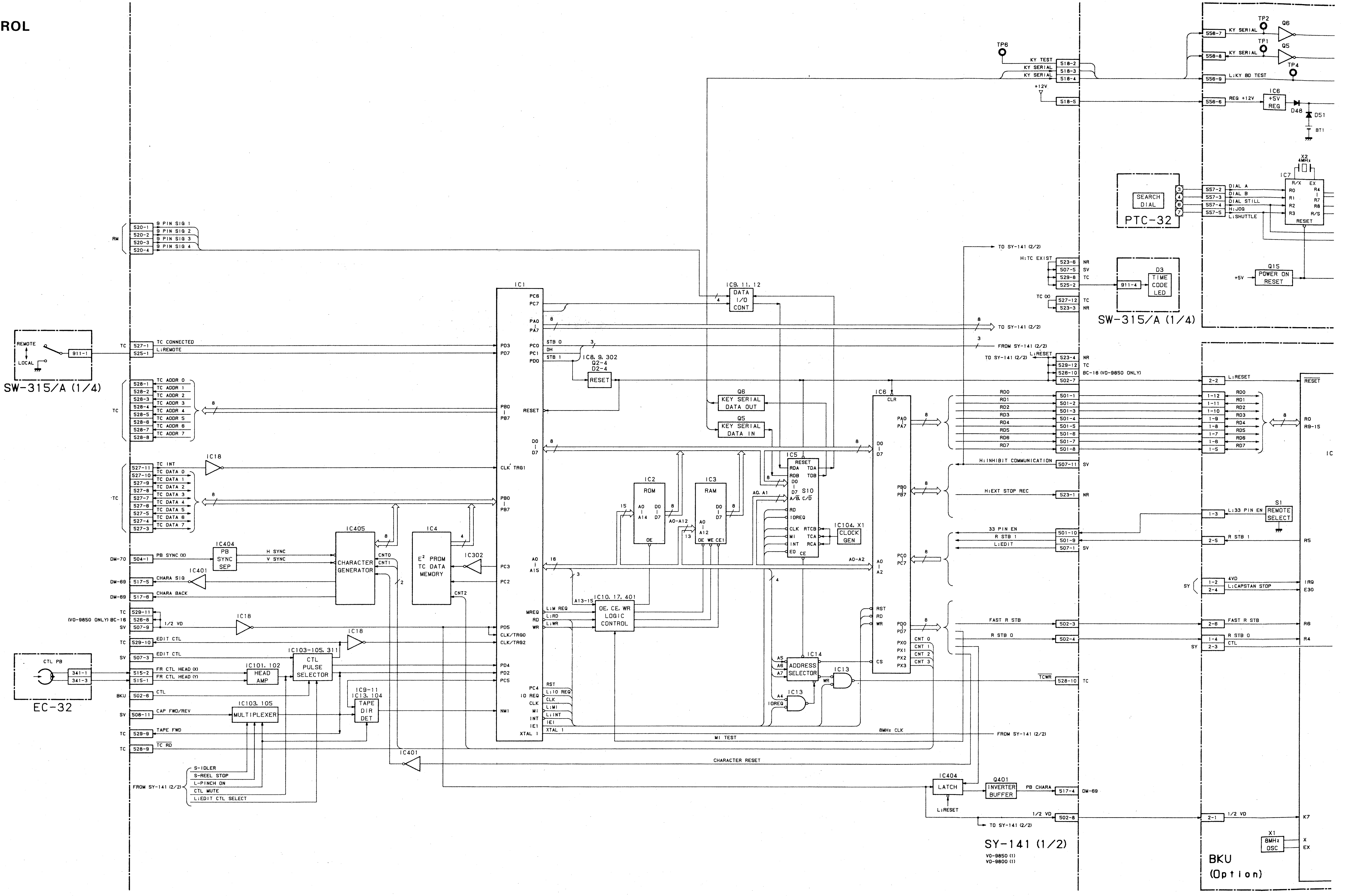
O +4dBu
LINE OUT
+ 4dBm
Q -2dBu
[AU124]
MON. BUFF
MONI TOR OUT
- 5dBu
R -5dBu
5d
OUTPUT TRANS
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
P -42dBu
H.P. AMP
H.P LEVEL VR

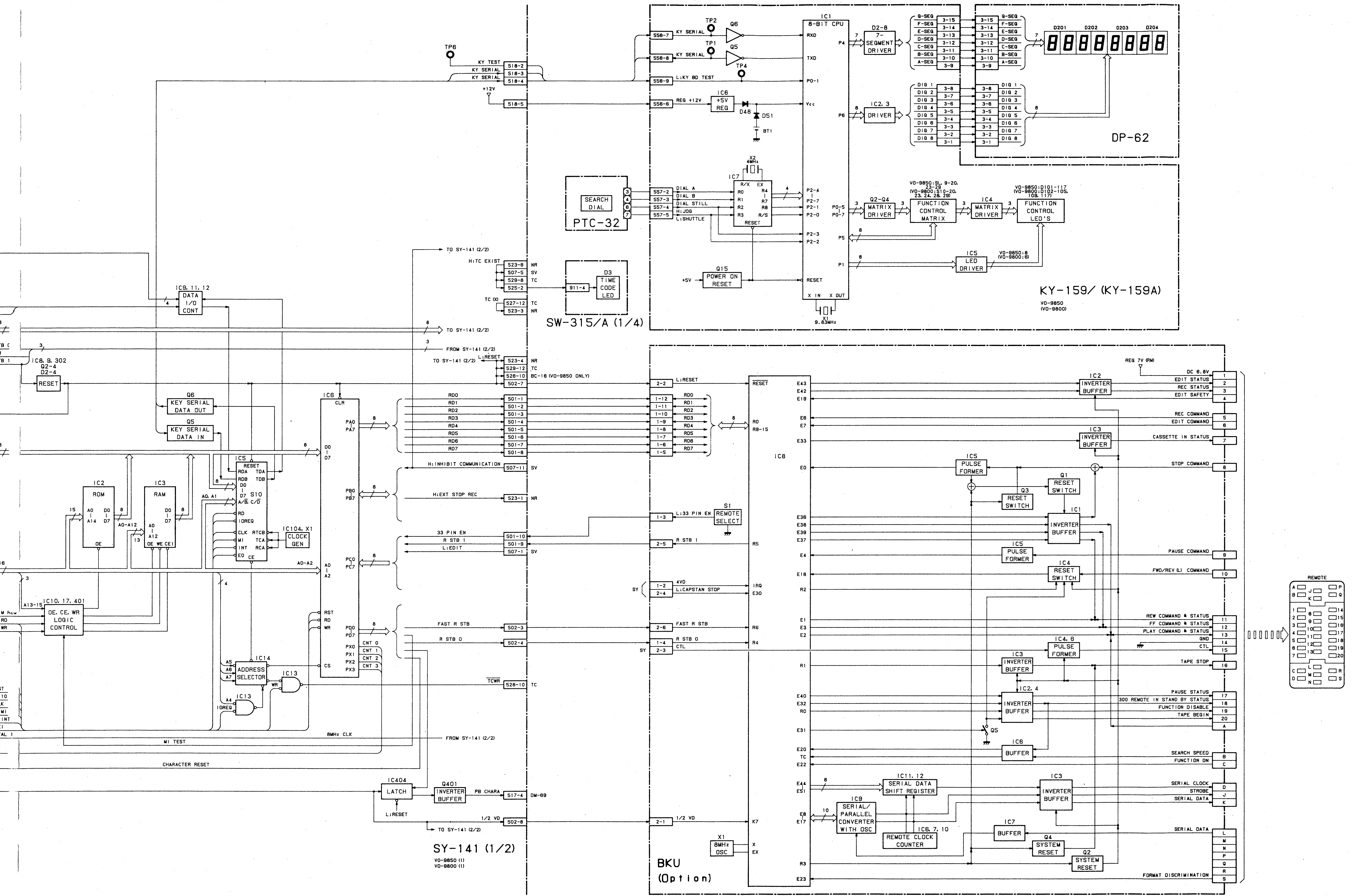
Audio Level Diagram PB



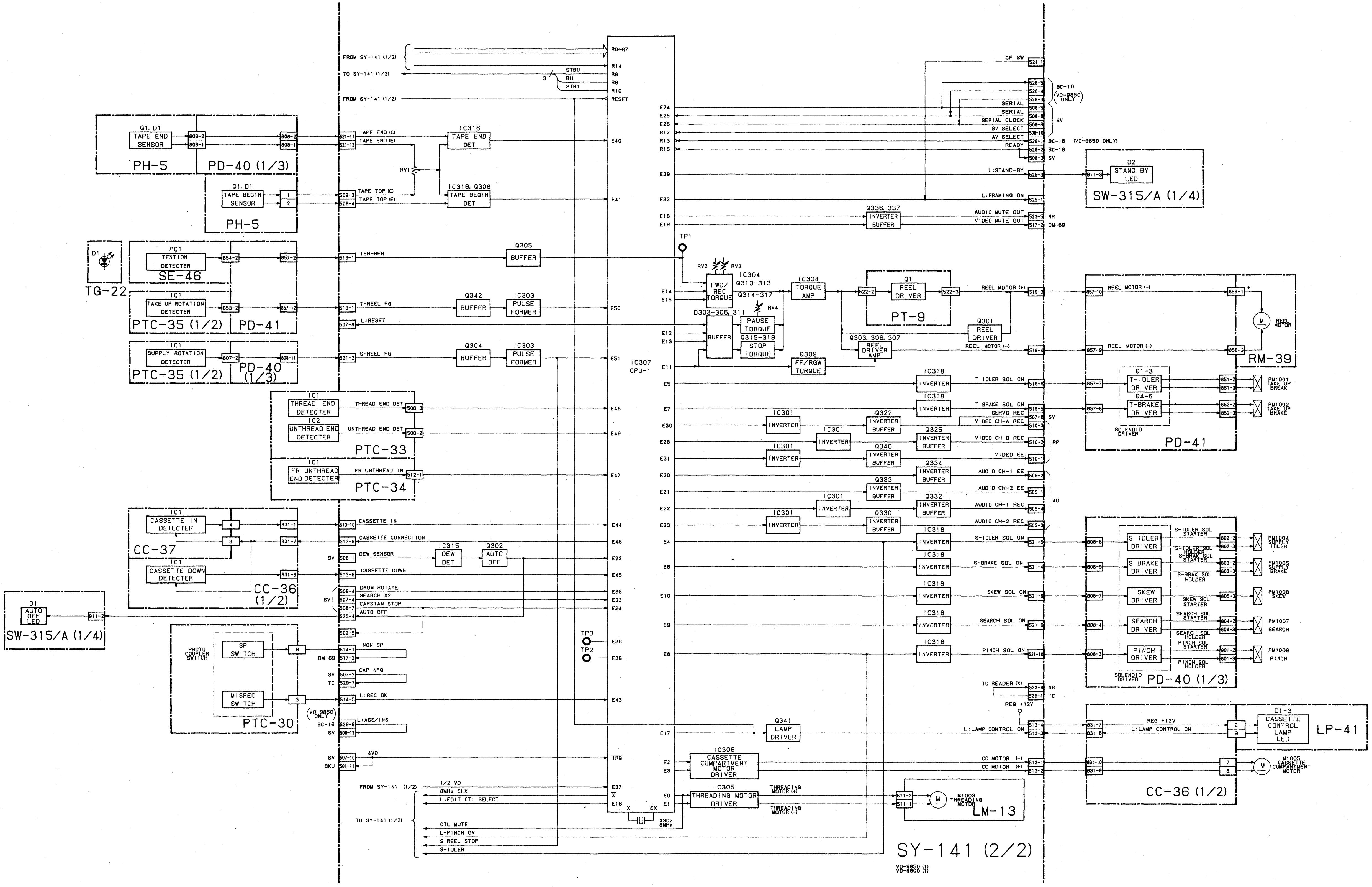
[AU124]
[NR31]
0dBu
-10
-20
-30
-40
-50
-60
S -65.5dBu
HEAD PB LEVEL
HEAD AMP
T -29dBu
H.P.F
U -7dBu
V -10dBu
W -15dBu
L.P.F
PB LEVEL VR RV104, 304
F -21dBu
DOLBY AMP
G -5dBu
L -8dBu
LINE OUT LEVEL VR RV11, 111
M -9dBu
LINE AMP
[AA]
[AU124]
N -5dBu
OUTPUT TRANS
O +4dBu
LINE OUT
+4dBm
Q -2dBu
[AU124]
MON. BUFF
R -5dBu
MONI TOR OUT
-5dBu
[HP]
HEAD PHONE OUT
-26 ~ -50dBu
P -42dBu
H.P. AMP
H.P LEVEL VR
※ Sig= 1KHz
※ 0dBu=0.775Vrms

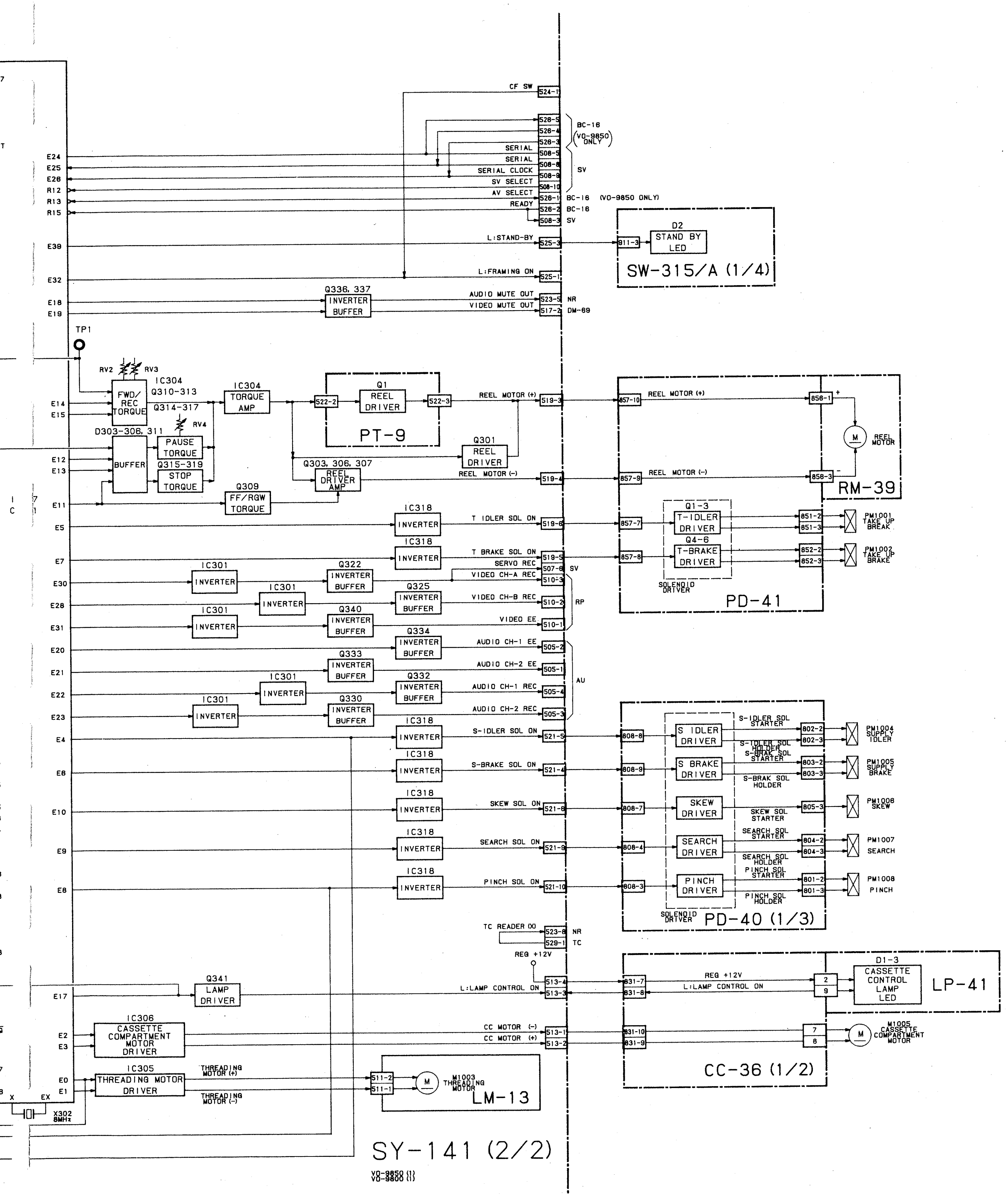
SYSTEM CONTROL


SW-315/A (1/4)
REMOTE
LOCAL
911-1
EC-32
CTL PB
341-1
341-3
IC1
IC2
ROM
IC3
RAM
IC4
E² PROM TC DATA MEMORY
IC5
S10
IC6
IC8, 9, 302 Q2-4 D2-4
RESET
IC9, 11, 12
DATA I/O CONT
Q6
KEY SERIAL DATA OUT
Q5
KEY SERIAL DATA IN
IC10, 17, 401
OE, CE, WR LOGIC CONTROL
IC104, X1
CLOCK GEN
IC14
ADDRESS SELECTOR
IC13
IC18
IC302
IC401
IC404
PB SYNC SEP
IC405
CHARACTER GENERATOR
IC101, 102
HEAD AMP
IC103-105, 311
CTL PULSE SELECTOR
IC103, 105
MULTIPLEXER
IC9-11 IC13, 104
TAPE DIR DET
IC404
LATCH
Q401
INVERTER BUFFER
TO SY-141 (2/2)
FROM SY-141 (2/2)
CHARACTER RESET
MI TEST
8MHz CLK
SY-141 (1/2)
VO-9850 (1)
VO-9800 (1)
PTC-32
SEARCH DIAL
SW-315/A (1/4)
D3
TIME CODE LED
TP1
TP2
TP4
TP6
Q5
Q6
IC6
+5V REG
D48
D51
BT1
IC7
X2 4MHz
Q15
POWER ON RESET
S1
REMOTE SELECT
X1
8MHz OSC
BKU
(Option)
RM
TC
DM-70
DM-69
SV
BKU
9 PIN SIG 1
9 PIN SIG 2
9 PIN SIG 3
9 PIN SIG 4
TC CONNECTED
L:REMOTE
TC ADDR 0
TC ADDR 1
TC ADDR 2
TC ADDR 3
TC ADDR 4
TC ADDR 5
TC ADDR 6
TC ADDR 7
TC INT
TC DATA 0
TC DATA 1
TC DATA 2
TC DATA 3
TC DATA 4
TC DATA 5
TC DATA 6
TC DATA 7
PB SYNC (X)
H SYNC
V SYNC
CHARA SIG
CHARA BACK
1/2 VD
EDIT CTL
FR CTL HEAD (X)
FR CTL HEAD (Y)
CTL
CAP FWD/REV
TAPE FWD
TC RD
S-IDLER
S-REEL STOP
L-PINCH ON
CTL MUTE
L:EDIT CTL SELECT
KY TEST
KY SERIAL
H:TC EXIST
L:RESET
H:INHIBIT COMMUNICATION
H:EXT STOP REC
33 PIN EN
R STB 1
L:EDIT
FAST R STB
R STB 0
CNT 0
CNT 1
CNT 2
CNT 3
TCWR
PB CHARA
L:KY BD TEST
REG +12V
DIAL A
DIAL B
DIAL STILL
H:JOG
L:SHUTTLE
L:33 PIN EN
4VD
L:CAPSTAN STOP

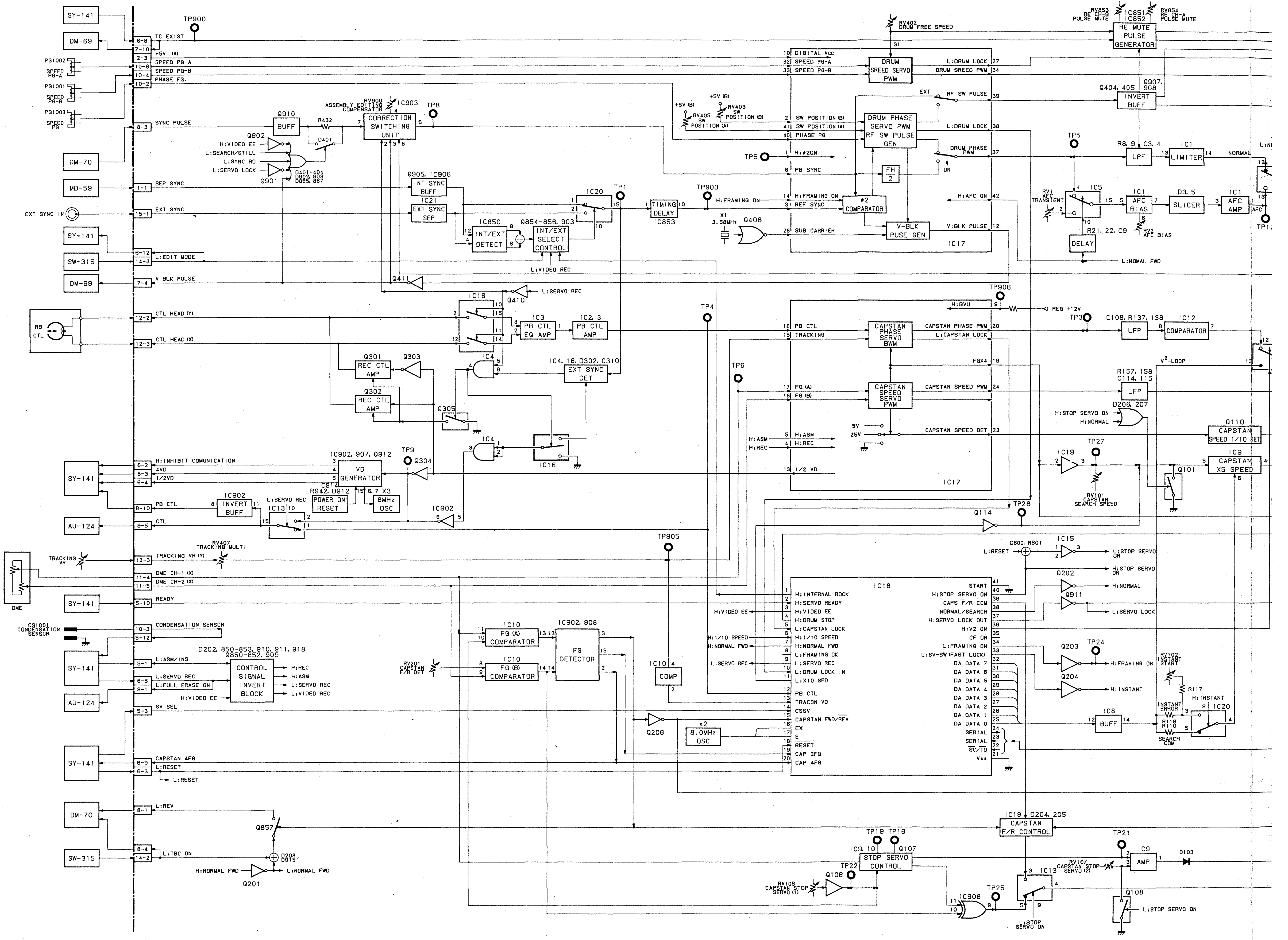

KY-159/ (KY-159A)
VO-9850
(VO-9800)
DP-62
PTC-32
SEARCH DIAL
SW-315/A (1/4)
SY-141 (1/2)
VO-9850 (1)
VO-9800 (1)
BKU
(Option)
REMOTE
IC1
8-BIT CPU
D2-8
7-SEGMENT DRIVER
IC2, 3
DRIVER
D201
D202
D203
D204
IC6
+5V REG
D48
DS1
BT1
IC7
X2
4MHz
X1
9.83MHz
Q2-Q4
MATRIX DRIVER
FUNCTION CONTROL MATRIX
IC4
MATRIX DRIVER
FUNCTION CONTROL LED'S
IC5
LED DRIVER
Q15
POWER ON RESET
D3
TIME CODE LED
TP6
TP2
TP1
TP4
Q6
Q5
KY TEST
KY SERIAL
L:KY BD TEST
REG +12V
DIAL A
DIAL B
DIAL STILL
H:JOG
L:SHUTTLE
IC9, 11, 12
DATA I/O CONT
IC8, 9, 302
Q2-4
D2-4
RESET
Q6
KEY SERIAL DATA OUT
Q5
KEY SERIAL DATA IN
IC2
ROM
IC3
RAM
IC5
S10
IC104, X1
CLOCK GEN
IC6
IC10, 17, 401
OE, CE, WR LOGIC CONTROL
IC14
ADDRESS SELECTOR
IC13
IC404
LATCH
Q401
INVERTER BUFFER
PB CHARA
MI TEST
CHARACTER RESET
8MHz CLK
TO SY-141 (2/2)
FROM SY-141 (2/2)
H:TC EXIST
H:INHIBIT COMMUNICATION
H:EXT STOP REC
33 PIN EN
R STB 1
L:EDIT
FAST R STB
R STB 0
TCWR
1/2 VD
L:RESET
BC-16 (VO-9850 ONLY)
DM-69
IC8
S1
REMOTE SELECT
L:33 PIN EN
4VD
L:CAPSTAN STOP
CTL
X1
8MHz OSC
IC2
INVERTER BUFFER
IC3
INVERTER BUFFER
IC5
PULSE FORMER
Q1
RESET SWITCH
Q3
RESET SWITCH
IC1
INVERTER BUFFER
IC4
RESET SWITCH
IC4, 6
PULSE FORMER
IC2, 4
INVERTER BUFFER
IC6
BUFFER
IC11, 12
SERIAL DATA SHIFT REGISTER
IC9
SERIAL/PARALLEL CONVERTER WITH OSC
IC6, 7, 10
REMOTE CLOCK COUNTER
IC7
BUFFER
Q4
SYSTEM RESET
Q2
SYSTEM RESET
REG 7V (RM)
DC 6.8V
EDIT STATUS
REC STATUS
EDIT SAFETY
REC COMMAND
EDIT COMMAND
CASSETTE IN STATUS
STOP COMMAND
PAUSE COMMAND
FWD/REV (L) COMMAND
REW COMMAND & STATUS
FF COMMAND & STATUS
PLAY COMMAND & STATUS
GND
CTL
TAPE STOP
PAUSE STATUS
300 REMOTE IN STAND BY STATUS
FUNCTION DISABLE
TAPE BEGIN
SEARCH SPEED
FUNCTION ON
SERIAL CLOCK
STROBE
SERIAL DATA
FORMAT DISCRIMINATION

SYSTEM CONTROL


FROM SY-141 (1/2)
TO SY-141 (1/2)
STB0
BH
STB1
R0-R7
R14
R8
R9
R10
RESET
Q1, D1
TAPE END SENSOR
PH-5
PD-40 (1/3)
TAPE END (C)
TAPE END (E)
IC316
TAPE END DET
RV1
Q1, D1
TAPE BEGIN SENSOR
TAPE TOP (C)
TAPE TOP (E)
IC316, Q308
TAPE BEGIN DET
PH-5
D1
TG-22
PC1
TENTION DETECTER
SE-46
TEN-REG
Q305
BUFFER
IC1
TAKE UP ROTATION DETECTER
PTC-35 (1/2)
PD-41
T-REEL FG
Q342
BUFFER
IC303
PULSE FORMER
L:RESET
IC1
SUPPLY ROTATION DETECTER
PTC-35 (1/2)
PD-40 (1/3)
S-REEL FG
Q304
BUFFER
IC303
PULSE FORMER
IC1
THREAD END DETECTER
THREAD END DET
IC2
UNTHREAD END DETECTER
UNTHREAD END DET
PTC-33
IC1
FR UNTHREAD END DETECTER
FR UNTHREAD IN
PTC-34
IC1
CASSETTE IN DETECTER
CC-37
CASSETTE IN
CASSETTE CONNECTION
IC1
CASSETTE DOWN DETECTER
CC-36 (1/2)
DEW SENSOR
IC315
DEW DET
Q302
AUTO OFF
CASSETTE DOWN
DRUM ROTATE
SEARCH X2
CAPSTAN STOP
AUTO OFF
D1
AUTO OFF LED
SW-315/A (1/4)
PHOTO COUPLER SWITCH
SP SWITCH
MISREC SWITCH
PTC-30
NON SP
CAP 4FG
L:REC OK
L:ASS/INS
(VD-9850 ONLY)
4VD
FROM SY-141 (1/2)
1/2 VD
8MHz CLK
L:EDIT CTL SELECT
TO SY-141 (1/2)
CTL MUTE
L-PINCH ON
S-REEL STOP
S-IDLER
TP3
TP2
IC307
CPU-1
X302
8MHz
TP1
CF SW
SERIAL
SERIAL
SERIAL CLOCK
SV SELECT
AV SELECT
READY
BC-18
(VD-9850 ONLY)
SV
BC-18 (VD-9850 ONLY)
L:STAND-BY
D2
STAND BY LED
SW-315/A (1/4)
L:FRAMING ON
Q336, 337
INVERTER BUFFER
AUDIO MUTE OUT
VIDEO MUTE OUT
NR
DM-69
RV2
RV3
FWD/REC TORQUE
IC304
Q310-313
Q314-317
RV4
IC304
TORQUE AMP
Q1
REEL DRIVER
PT-9
REEL MOTOR (+)
REEL MOTOR (-)
D303-306, 311
BUFFER
PAUSE TORQUE
Q315-319
STOP TORQUE
Q309
FF/RGW TORQUE
Q303, 306, 307
REEL DRIVER AMP
Q301
REEL DRIVER
REEL MOTOR
RM-39
IC318
INVERTER
T IDLER SOL ON
T BRAKE SOL ON
SERVO REC
VIDEO CH-A REC
VIDEO CH-B REC
VIDEO EE
AUDIO CH-1 EE
AUDIO CH-2 EE
AUDIO CH-1 REC
AUDIO CH-2 REC
IC301
INVERTER
Q322
Q325
Q340
Q334
Q333
Q332
Q330
INVERTER BUFFER
RP
AU
Q1-3
T-IDLER DRIVER
Q4-6
T-BRAKE DRIVER
SOLENOID DRIVER
PD-41
PM1001 TAKE UP BREAK
PM1002 TAKE UP BRAKE
S-IDLER SOL ON
S-BRAKE SOL ON
SKEW SOL ON
SEARCH SOL ON
PINCH SOL ON
S IDLER DRIVER
S BRAKE DRIVER
SKEW DRIVER
SEARCH DRIVER
PINCH DRIVER
S-IDLER SOL STARTER
S-IDLER SOL HOLDER
S-BRAK SOL STARTER
S-BRAK SOL HOLDER
SKEW SOL STARTER
SEARCH SOL STARTER
SEARCH SOL HOLDER
PINCH SOL STARTER
PINCH SOL HOLDER
PM1004 SUPPLY IDLER
PM1005 SUPPLY BRAKE
PM1006 SKEW
PM1007 SEARCH
PM1008 PINCH
PD-40 (1/3)
TC READER (X)
TC
REG +12V
Q341
LAMP DRIVER
L:LAMP CONTROL ON
D1-3
CASSETTE CONTROL LAMP LED
LP-41
IC306
CASSETTE COMPARTMENT MOTOR DRIVER
CC MOTOR (-)
CC MOTOR (+)
M1005 CASSETTE COMPARTMENT MOTOR
CC-36 (1/2)
IC305
THREADING MOTOR DRIVER
THREADING MOTOR (+)
THREADING MOTOR (-)
M1003 THREADING MOTOR
LM-13
SY-141 (2/2)
VD-9850 (1)
VD-9800 (1)


E24
E25
E26
R12
R13
R15
E39
E32
E18
E19
TP1
E14
E15
E12
E13
E11
E5
E7
E30
E28
E31
E20
E21
E22
E23
E4
E6
E10
E9
E8
E17
E2
E3
E0
E1
X
EX
X302
8MHz
CF SW
524-1
526-5
526-4
526-3
SERIAL
508-5
SERIAL
508-6
SERIAL CLOCK
508-8
SV SELECT
508-10
AV SELECT
526-1
READY
526-2
508-3
BC-16
(VO-9850 ONLY)
SV
BC-16 (VO-9850 ONLY)
BC-16
SV
L:STAND-BY
525-3
911-3
D2
STAND BY LED
SW-315/A (1/4)
L:FRAMING ON
525-1
Q336, 337
INVERTER BUFFER
AUDIO MUTE OUT
VIDEO MUTE OUT
523-5
517-2
NR
DM-69
RV2
RV3
IC304
Q310-313
Q314-317
FWD/REC TORQUE
IC304
TORQUE AMP
RV4
D303-306, 311
BUFFER
PAUSE TORQUE
Q315-319
STOP TORQUE
Q309
FF/RGW TORQUE
522-2
Q1
REEL DRIVER
522-3
PT-9
Q301
REEL DRIVER
Q303, 306, 307
REEL DRIVER AMP
REEL MOTOR (+)
519-3
REEL MOTOR (–)
519-4
857-10
REEL MOTOR (+)
856-1
+
M
REEL MOTOR
–
857-9
REEL MOTOR (–)
856-3
RM-39
IC318
INVERTER
T IDLER SOL ON
519-6
857-7
Q1-3
T-IDLER DRIVER
851-2
851-3
PM1001
TAKE UP BREAK
IC318
INVERTER
T BRAKE SOL ON
519-5
857-8
Q4-6
T-BRAKE DRIVER
852-2
852-3
PM1002
TAKE UP BRAKE
SOLENOID DRIVER
PD-41
SERVO REC
507-6
SV
IC301
INVERTER
Q322
INVERTER BUFFER
VIDEO CH-A REC
510-3
IC301
INVERTER
Q325
INVERTER BUFFER
VIDEO CH-B REC
510-2
RP
IC301
INVERTER
Q340
INVERTER BUFFER
VIDEO EE
510-1
Q334
INVERTER BUFFER
AUDIO CH-1 EE
505-2
Q333
INVERTER BUFFER
AUDIO CH-2 EE
505-1
IC301
INVERTER
Q332
INVERTER BUFFER
AUDIO CH-1 REC
505-4
AU
IC301
INVERTER
Q330
INVERTER BUFFER
AUDIO CH-2 REC
505-3
IC318
INVERTER
S-IDLER SOL ON
521-5
808-8
S IDLER DRIVER
S-IDLER SOL STARTER
S-IDLER SOL HOLDER
802-2
802-3
PM1004
SUPPLY IDLER
IC318
INVERTER
S-BRAKE SOL ON
521-4
808-9
S BRAKE DRIVER
S-BRAK SOL STARTER
S-BRAK SOL HOLDER
803-2
803-3
PM1005
SUPPLY BRAKE
IC318
INVERTER
SKEW SOL ON
521-6
808-7
SKEW DRIVER
SKEW SOL STARTER
805-3
PM1006
SKEW
IC318
INVERTER
SEARCH SOL ON
521-9
808-4
SEARCH DRIVER
SEARCH SOL STARTER
SEARCH SOL HOLDER
804-2
804-3
PM1007
SEARCH
IC318
INVERTER
PINCH SOL ON
521-10
808-3
PINCH DRIVER
PINCH SOL STARTER
PINCH SOL HOLDER
801-2
801-3
PM1008
PINCH
SOLENOID DRIVER
PD-40 (1/3)
TC READER (X)
523-8
529-1
NR
TC
REG +12V
513-4
Q341
LAMP DRIVER
L:LAMP CONTROL ON
513-3
831-7
831-8
REG +12V
L:LAMP CONTROL ON
2
9
D1-3
CASSETTE CONTROL LAMP LED
LP-41
IC306
CASSETTE COMPARTMENT MOTOR DRIVER
CC MOTOR (–)
CC MOTOR (+)
513-1
513-2
831-10
831-9
7
8
M
M1005
CASSETTE COMPARTMENT MOTOR
CC-36 (1/2)
IC305
THREADING MOTOR DRIVER
THREADING MOTOR (+)
THREADING MOTOR (–)
511-2
511-1
M
M1003
THREADING MOTOR
LM-13
SY-141 (2/2)
VO-9850 (1)
VO-9800 (1)

SERVO SYSTEM


SY-141
DM-69
PG1002 SPEED PG-A
PG1001 SPEED PG-B
PG1003 SPEED PG
DM-70
MD-59
EXT SYNC IN
SY-141
SW-315
DM-69
RB CTL
SY-141
AU-124
TRACKING VR
DME
SY-141
CS1001 CONDENSATION SENSOR
SY-141
AU-124
SY-141
DM-70
SW-315
TC EXIST
+5V (A)
SPEED PG-A
SPEED PG-B
PHASE FG.
SYNC PULSE
SEP SYNC
EXT SYNC
L:EDIT MODE
V BLK PULSE
CTL HEAD (Y)
CTL HEAD (X)
H:INHIBIT COMUNICATION
4VD
1/2VD
PB CTL
CTL
TRACKING VR (Y)
DME CH-1 (X)
DME CH-2 (X)
READY
CONDENSATION SENSOR
L:ASM/INS
L:SERVO REC
L:FULL ERASE ON
SV SEL
CAPSTAN 4FG
L:RESET
L:REV
L:TBC ON
H:NORMAL FWD
L:NORMAL FWD
Q201
Q857
D208, D915
TP900
Q910 BUFF
R432
D401
Q902
H:VIDEO EE
L:SEARCH/STILL
L:SYNC RD
L:SERVO LOCK
Q901
D401-404 D902, 903 D865, 867
RV900 ASSEMBLY EDITING COMPENSATOR
IC903
CORRECTION SWITCHING UNIT
TP8
Q905, IC906 INT SYNC BUFF
IC21 EXT SYNC SEP
IC850 INT/EXT DETECT
Q854-856, 903 INT/EXT SELECT CONTROL
L:VIDEO REC
IC20
TP1
TIMING DELAY IC853
TP903
H:FRAMING ON
X1 3.58MHz
Q408
Q411
Q410
L:SERVO REC
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
IC4
IC4, 16, D302, C310 EXT SYNC DET
Q301 REC CTL AMP
Q303
Q302 REC CTL AMP
Q305
IC4
IC16
IC902, 907, Q912 VD GENERATOR
TP9
Q304
C912
R942, D912 POWER ON RESET
6, 7 X3 8MHz OSC
IC902 INVERT BUFF
L:SERVO REC
IC13
IC902
RV407 TRACKING MULTI
D202, 850-853, 910, 911, 918 Q850-852, 909
CONTROL SIGNAL INVERT BLOCK
H:REC
H:ASM
L:SERVO REC
L:VIDEO REC
H:VIDEO EE
IC10 FG (A) COMPARATOR
IC10 FG (B) COMPARATOR
RV201 CAPSTAN F/R DET
IC902, 908 FG DETECTOR
IC10 COMP
TP905
Q206
x2 8.0MHz OSC
TP4
TP6
RV402 DRUM FREE SPEED
RV853 RE CH-B PULSE MUTE
IC851 IC852
RV854 RE CH-A PULSE MUTE
RE MUTE PULSE GENERATOR
DIGITAL Vcc
SPEED PG-A
SPEED PG-B
DRUM SPEED SERVO PWM
L:DRUM LOCK
DRUM SPEED PWM
EXT
RF SW PULSE
Q404, 405
Q907, 908 INVERT BUFF
+5V (B)
RV405 SW POSITION (A)
RV403 SW POSITION (B)
SW POSITION (B)
SW POSITION (A)
PHASE PG
DRUM PHASE SERVO PWM RF SW PULSE GEN
L:DRUM LOCK
DRUM PHASE PWM
ON
TP5
H:#20N
PB SYNC
FH 2
H:FRAMING ON
REF SYNC
#2 COMPARATOR
H:AFC ON
V-BLK PUSE GEN
V:BLK PULSE
SUB CARRIER
IC17
TP5
R8, 9 C3, 4
LPF
IC1 LIMITER
NORMAL
RV1 AFC TRANSIENT
IC5
IC1 AFC BIAS
D3, 5 SLICER
IC1 AFC AMP
RV2 AFC BIAS
R21, 22, C9
DELAY
L:NOMAL FWD
TP906
H:BVU
REG +12V
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
5V
25V
CAPSTAN SPEED DET
H:ASM
H:REC
1/2 VD
IC17
TP3
C108, R137, 138
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IC12 COMPARATOR
V²-LOOP
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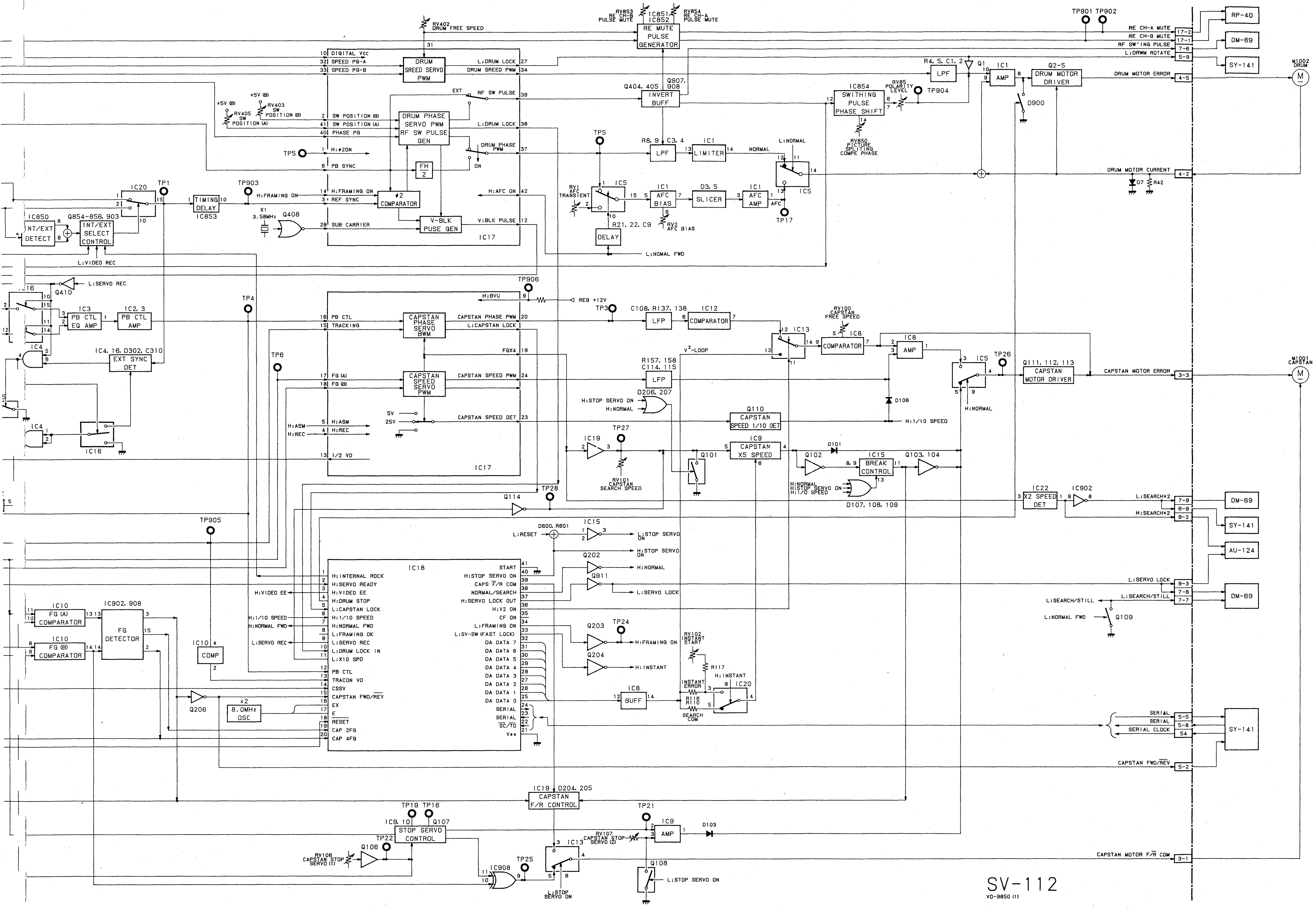
LFP
D206, 207
H:STOP SERVO ON
H:NORMAL
Q110 CAPSTAN SPEED 1/10 DET
TP27
IC19
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
TP28
Q114
D600, R601
L:RESET
IC15
L:STOP SERVO ON
H:STOP SERVO ON
Q202
H:NORMAL
Q911
L:SERVO LOCK
IC18
H:INTERNAL ROCK
H:SERVO READY
H:VIDEO EE
H:DRUM STOP
L:CAPSTAN LOCK
H:1/10 SPEED
H:NORMAL FWD
L:FRAMING OK
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
CSSV
CAPSTAN FWD/REV
EX
E
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
H:SERVO LOCK OUT
H:V2 ON
CF ON
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
SERIAL
SERIAL
SC/TD
Vss
H:VIDEO EE
H:1/10 SPEED
H:NORMAL FWD
L:SERVO REC
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
RV102 INSTANT START
R117
H:INSTANT
INSTANT ERROR
IC8 BUFF
R118 R119
SEARCH COM
IC20
IC19, D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
IC9, 10
Q107
STOP SERVO CONTROL
TP22
RV108 CAPSTAN STOP SERVO (1)
Q106
IC908
TP25
IC13
L:STOP SERVO ON
RV107 CAPSTAN STOP SERVO (2)
TP21
IC9 AMP
D103
Q108
L:STOP SERVO ON


RV402 DRUM FREE SPEED
RV853 RE CH-B PULSE MUTE
IC851 IC852 RE MUTE PULSE GENERATOR
RV854 RE CH-A PULSE MUTE
DIGITAL Vcc
SPEED PG-A
SPEED PG-B
DRUM SREED SERVO PWM
L:DRUM LOCK
DRUM SREED PWM
SW POSITION (B)
SW POSITION (A)
PHASE PG
DRUM PHASE SERVO PWM RF SW PULSE GEN
RF SW PULSE
DRUM PHASE PWM
EXT
ON
RV405 SW POSITION (A)
RV403 SW POSITION (B)
+5V (B)
TP5
H:#20N
PB SYNC
FH 2
H:FRAMING ON
REF SYNC
#2 COMPARATOR
SUB CARRIER
V-BLK PUSE GEN
H:AFC ON
V:BLK PULSE
IC17
IC20
TP1
TIMING DELAY
IC853
TP903
H:FRAMING ON
X1 3.58MHz
Q408
IC850 INT/EXT DETECT
Q854-856, 903
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L:VIDEO REC
Q404, 405
Q907, 908
INVERT BUFF
R8, 9 C3, 4 LPF
IC1 LIMITER
NORMAL
L:NORMAL
IC5
RV1 AFC TRANSIENT
IC1 AFC BIAS
RV2 AFC BIAS
D3, 5 SLICER
IC1 AFC AMP
AFC
TP17
R21, 22, C9
DELAY
L:NOMAL FWD
IC854 SWITHING PULSE PHASE SHIFT
RV85 POLARITY LEVEL
TP904
RV850 PICTURE SPLITING COMPE PHASE
R4, 5, C1, 2 LPF
Q1
IC1 AMP
Q2-5 DRUM MOTOR DRIVER
D900
DRUM MOTOR ERROR
DRUM MOTOR CURRENT
D7
R42
TP901 TP902
RE CH-A MUTE
RE CH-B MUTE
RF SW'ING PULSE
L:DRWM ROTATE
RP-40
DM-69
SY-141
M1002 DRUM
L:SERVO REC
Q410
IC16
IC3 PB CTL EQ AMP
IC2, 3 PB CTL AMP
IC4
IC4, 16, D302, C310 EXT SYNC DET
TP4
TP6
TP906
H:BVU
REG +12V
PB CTL
TRACKING
CAPSTAN PHASE SERVO BWM
CAPSTAN PHASE PWM
L:CAPSTAN LOCK
FGX4
FG (A)
FG (B)
CAPSTAN SPEED SERVO PWM
CAPSTAN SPEED PWM
5V
25V
CAPSTAN SPEED DET
H:ASM
H:REC
1/2 VD
TP3
C108, R137, 138 LPF
IC12 COMPARATOR
IC13
RV100 CAPSTAN FREE SPEED
IC8 COMPARATOR
IC8 AMP
IC5
TP26
Q111, 112, 113 CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR ERROR
M1001 CAPSTAN
V2-LOOP
R157, 158 C114, 115 LFP
D206, 207
H:STOP SERVO ON
H:NORMAL
Q110 CAPSTAN SPEED 1/10 DET
D108
H:1/10 SPEED
IC19
TP27
RV101 CAPSTAN SEARCH SPEED
Q101
IC9 CAPSTAN X5 SPEED
D101
Q102
IC15 BREAK CONTROL
Q103, 104
D107, 108, 109
IC22 X2 SPEED DET
IC902
L:SEARCHx2
H:SEARCHx2
DM-69
SY-141
AU-124
Q114
TP28
TP905
D600, R601
L:RESET
IC15
L:STOP SERVO ON
H:STOP SERVO ON
Q202
H:NORMAL
Q911
L:SERVO LOCK
IC18
H:INTERNAL ROCK
H:SERVO READY
H:VIDEO EE
H:DRUM STOP
L:CAPSTAN LOCK
H:1/10 SPEED
H:NORMAL FWD
L:FRAMING OK
L:SERVO REC
L:DRUM LOCK IN
L:X10 SPD
PB CTL
TRACON VD
CSSV
CAPSTAN FWD/REV
EX
E
RESET
CAP 2FG
CAP 4FG
START
H:STOP SERVO ON
CAPS F/R COM
NORMAL/SEARCH
H:SERVO LOCK OUT
H:V2 ON
CF ON
L:FRAMING ON
L:SV-SW (FAST LOCK)
DA DATA 7
DA DATA 6
DA DATA 5
DA DATA 4
DA DATA 3
DA DATA 2
DA DATA 1
DA DATA 0
SERIAL
SERIAL
SC/TO
Vss
Q203
TP24
H:FRAMING ON
Q204
H:INSTANT
RV102 INSTANT START
R117
H:INSTANT
IC20
INSTANT ERROR
R118 R110
SEARCH COM
IC8 BUFF
L:SERVO LOCK
L:SEARCH/STILL
L:NORMAL FWD
Q109
DM-69
SERIAL
SERIAL
SERIAL CLOCK
SY-141
CAPSTAN FWD/REV
IC10 FG (A) COMPARATOR
IC10 FG (B) COMPARATOR
IC902, 908 FG DETECTOR
IC10 COMP
Q206
x2 8.0MHz OSC
IC19 D204, 205 CAPSTAN F/R CONTROL
TP19 TP16
IC9, 10 Q107 STOP SERVO CONTROL
TP22
Q106
RV106 CAPSTAN STOP SERVO (1)
IC908
TP25
IC13
L:STOP SERVO ON
TP21
RV107 CAPSTAN STOP SERVO (2)
IC9 AMP
D103
Q108
L:STOP SERVO ON
CAPSTAN MOTOR F/R COM
17-2
17-1
7-6
5-9
4-5
4-2
3-3
7-9
6-9
9-2
9-3
7-8
7-7
5-5
5-8
S4
S-2
3-1

SV-112

VO-9850 (1)

SECTION 14
SEMICONDUCTOR ELECTRODES

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。)部品の交換をする時は、SPARE PARTSの章を参照して下さい。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

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2SD894	14-17
2SD998	14-17
2SK523	14-17
DTA124XS	14-17
DTA143XS	14-17
DTA144ES	14-17
DTC124ES	14-17
DTC124XS	14-17
DTC143TS	14-17
DTC144ES	14-17
SPS102	14-17

等価回路はICメーカーのData Bookに従いました。

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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1SS119 14-17
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1SS97 14-17
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RD??EB? 14-17
RD??ESB? 14-17

TLUG154 14-17

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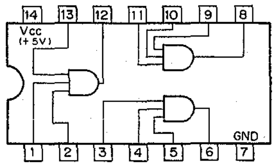
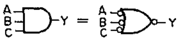
74F11PC (FSC)
TTL 3-INPUT POSITIVE-AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7

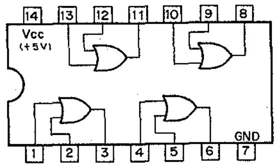


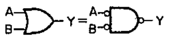
$Y = A \cdot B \cdot C = \overline{\overline{A}+\overline{B}+\overline{C}}$

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

0;LOW LEVEL
1;HIGH LEVEL

74F32PC (FSC)
TTL 2-INPUT POSITIVE-OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
Vcc
(+5V)
GND
1
2
3
4
5
6
7

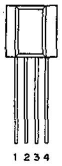


$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

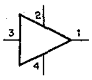
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0;LOW LEVEL
1;HIGH LEVEL

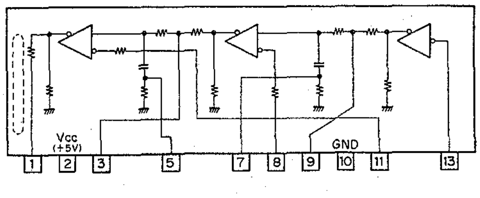
AN607P (MATSUSHITA)
AN608P (MATSUSHITA)
WIDE BAND AMPLIFIER
— PRINTED SIDE VIEW —



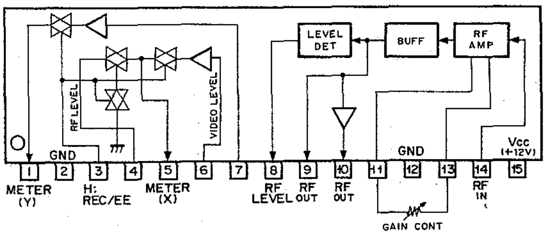
1: OUTPUT
2: Vcc (+12V)
3: INPUT
4: GND



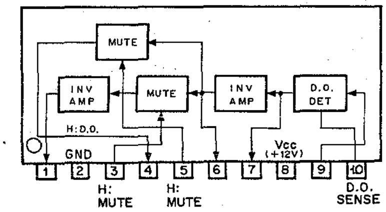
BX1140L (ROHM)
HF AMP
— REAR VIEW —


Vcc
(+5V)
GND
1
2
3
5
7
8
9
10
11
13

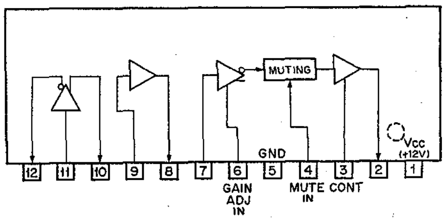
BX1246L (ROHM)
RF AND VIDEO LEVEL METER DRIVER
— PRINTED SIDE VIEW —


LEVEL DET
BUFF
RF AMP
RF LEVEL
VIDEO LEVEL
GND
GND
Vcc
(+12V)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
METER (Y)
H: REC/EE
METER (X)
RF LEVEL
RF OUT
RF OUT
RF IN
GAIN CONT

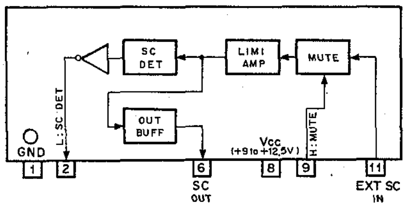
BX1248L (ROHM)
DROPOUT DETECTOR
— PRINTED SIDE VIEW —


MUTE
INV AMP
MUTE
INV AMP
D.O. DET
H: D.O.
GND
Vcc
(+12V)
1
2
3
4
5
6
7
8
9
10
H: MUTE
H: MUTE
D.O. SENSE

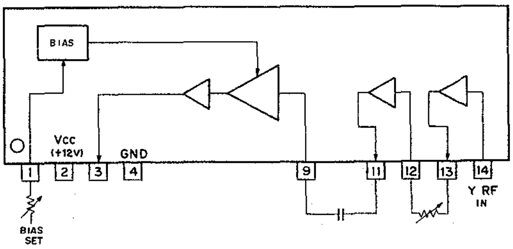
BX1250L (ROHM)
CHROMA OUTPUT AMPLIFIER
— REAR VIEW —


MUTING
GND
Vcc
(+12V)
12
11
10
9
8
7
6
5
4
3
2
1
GAIN ADJ IN
MUTE CONT IN

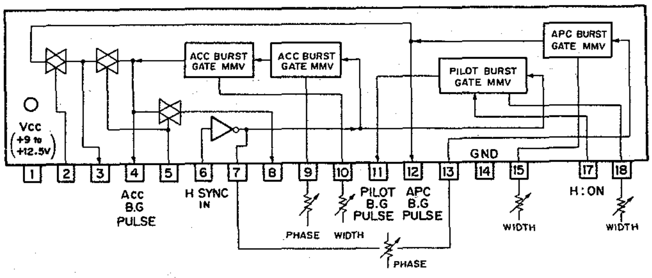
BX1251L (ROHM)
EXTERNAL SUBCARRIER AMPLIFIER
— PRINTED SIDE VIEW —


SC DET
LIMI AMP
MUTE
OUT BUFF
L: SC DET
H: MUTE
GND
Vcc
(+9 to +12.5V)
1
2
6
8
9
11
SC OUT
EXT SC IN

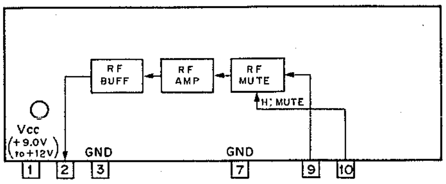
BX1257 (SONY)
Y-RF SIDE BAND EQUALIZER
— PRINTED SIDE VIEW —


BIAS
Vcc
(+12V)
GND
1
2
3
4
9
11
12
13
14
Y RF IN
BIAS SET

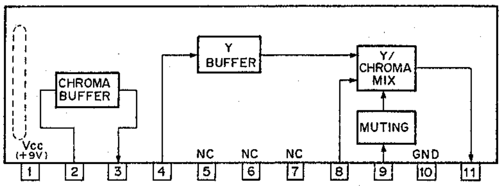
BX1264L (ROHM)
ACC/APC BURST GATE PULSE GENERATOR
— PRINTED SIDE VIEW —


APC BURST GATE MMV
ACC BURST GATE MMV
ACC BURST GATE MMV
PILOT BURST GATE MMV
Vcc
(+9 to +12.5V)
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
17
18
Acc B.G PULSE
H SYNC IN
PILOT B.G PULSE
APC B.G PULSE
H: ON
PHASE
WIDTH
PHASE
WIDTH
WIDTH

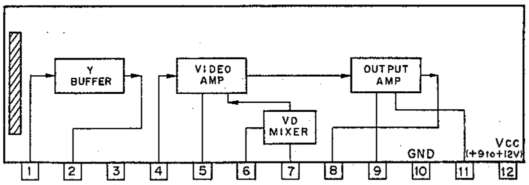
BX1265L (ROHM)
VIDEO HEAD AMPLIFIER/MUTING
— PRINTED SIDE VIEW —


RF BUFF
RF AMP
RF MUTE
H: MUTE
Vcc (+9.0V to +12V)
GND
GND
1
2
3
7
9
10

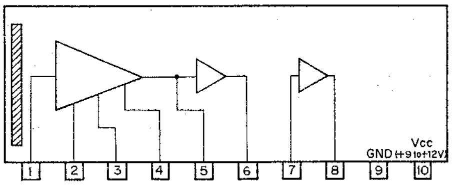
BX373AL (ROHM)
MIX AMP
— REAR VIEW —


CHROMA BUFFER
Y BUFFER
Y/CHROMA MIX
MUTING
Vcc (+9V)
NC
NC
NC
GND
1
2
3
4
5
6
7
8
9
10
11

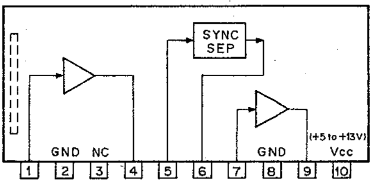
BX388L (ROHM)
VIDEO AMP/VD MIXER
— PRINTED SIDE —


Y BUFFER
VIDEO AMP
VD MIXER
OUTPUT AMP
GND
Vcc (+9 to +12V)
1
2
3
4
5
6
7
8
9
10
11
12

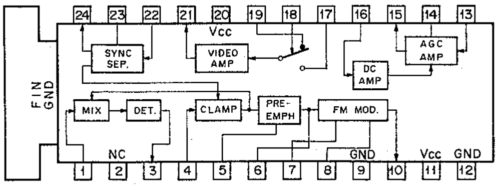
BX389L (ROHM)
VIDEO AMPLIFIER
— PRINTED SIDE —


GND
Vcc (+9 to +12V)
1
2
3
4
5
6
7
8
9
10

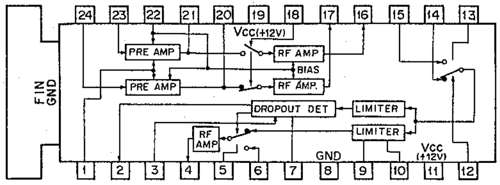
BX3915A (SONY)
SYNC SEPARATOR
— PRINTED SIDE —


SYNC SEP
GND
NC
GND
(+5 to +13V) Vcc
1
2
3
4
5
6
7
8
9
10

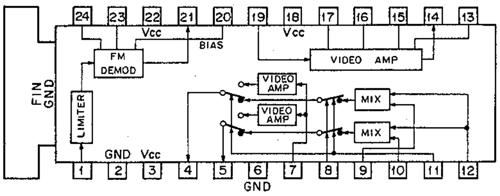
CX131A (SONY)
— TOP VIEW —


FIN GND
Vcc
SYNC SEP.
VIDEO AMP
AGC AMP
DC AMP
MIX
DET.
CLAMP
PRE-EMPH
FM MOD.
NC
GND
Vcc
GND
24
23
22
21
20
19
18
17
16
15
14
13
1
2
3
4
5
6
7
8
9
10
11
12

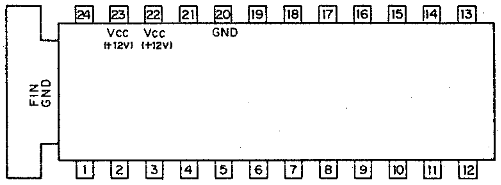
CX134A (SONY)
HEAD AMP/DROPOUT COMPENSATOR
— TOP VIEW —

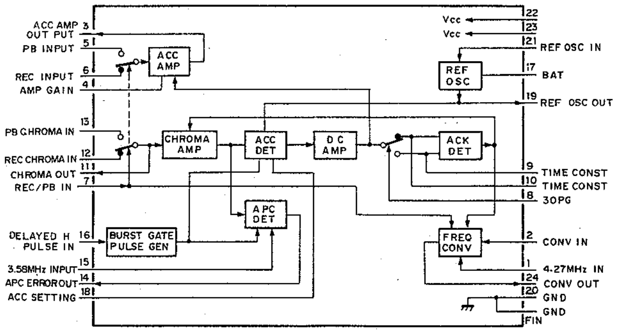

FIN GND
Vcc (+12V)
PRE AMP
RF AMP
BIAS
PRE AMP
RF AMP
DROPOUT DET
LIMITER
LIMITER
RF AMP
GND
Vcc (+12V)
24
23
22
21
20
19
18
17
16
15
14
13
1
2
3
4
5
6
7
8
9
10
11
12

CX135 (SONY)
— TOP VIEW —

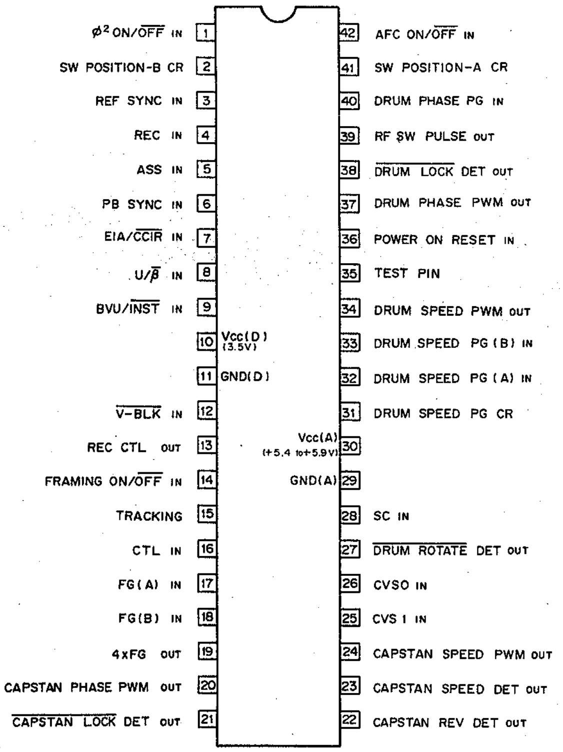

FIN GND
Vcc
BIAS
Vcc
FM DEMOD
VIDEO AMP
VIDEO AMP
VIDEO AMP
MIX
MIX
LIMITER
GND
Vcc
GND
24
23
22
21
20
19
18
17
16
15
14
13
1
2
3
4
5
6
7
8
9
10
11
12

CX188
CHROMINANCE SIGNAL PROCESSER
— TOP VIEW —

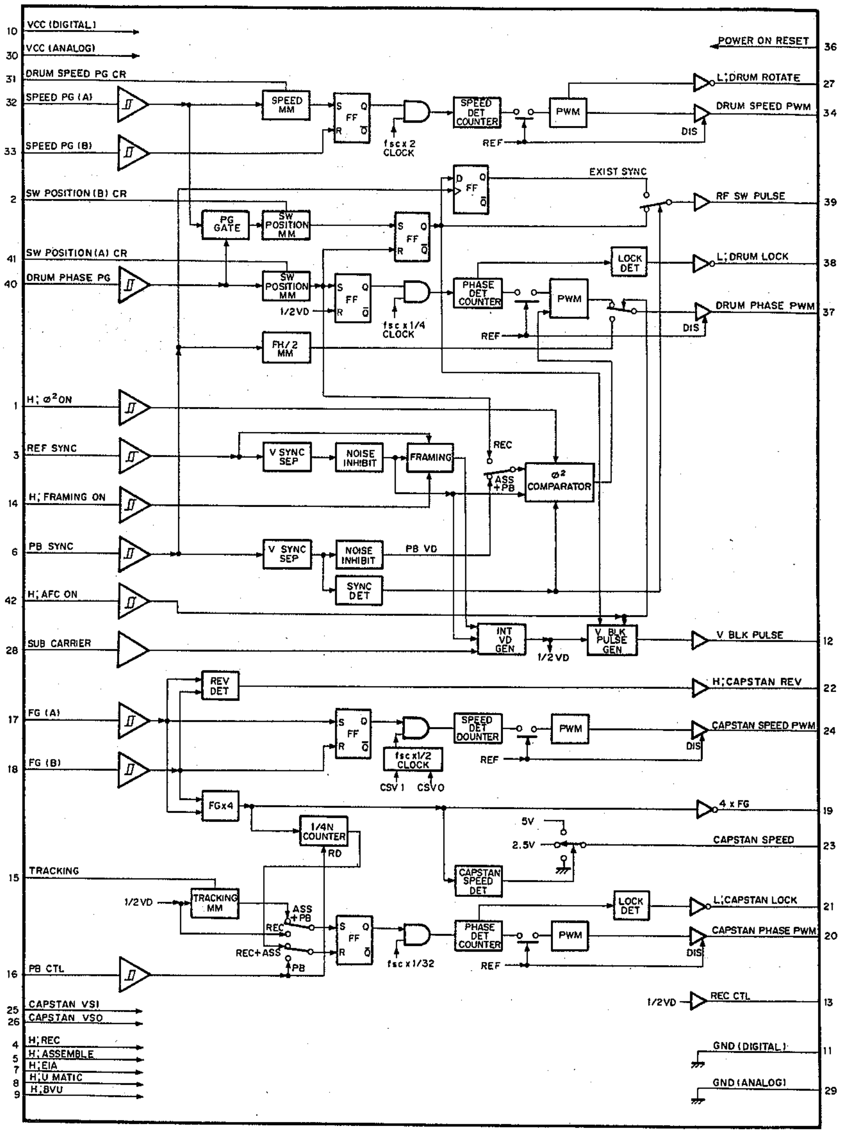

FIN GND
Vcc (+12V)
Vcc (+12V)
GND
24
23
22
21
20
19
18
17
16
15
14
13
1
2
3
4
5
6
7
8
9
10
11
12


ACC AMP OUT PUT 3
PB INPUT 5
REC INPUT 6
AMP GAIN 4
PB CHROMA IN 13
REC CHROMA IN 12
CHROMA OUT 11
REC/PB IN 7
DELAYED H PULSE IN 16
3.58MHz INPUT 15
APC ERROR OUT 14
ACC SETTING 18
ACC AMP
CHROMA AMP
ACC DET
DC AMP
ACK DET
APC DET
BURST GATE PULSE GEN
REF OSC
FREQ CONV
22 Vcc
23 Vcc
21 REF OSC IN
17 BAT
19 REF OSC OUT
9 TIME CONST
10 TIME CONST
8 30PG
2 CONV IN
1 4.27MHz IN
24 CONV OUT
20 GND
GND
FIN

CX194B (SONY)
DRUM/CAPSTAN PWM SERVO
— TOP VIEW —

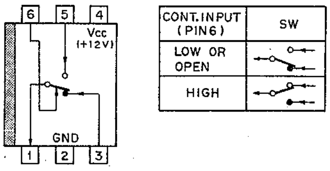


1 ϕ^2 ON/$\overline{\text{OFF}}$ IN
2 SW POSITION-B CR
3 REF SYNC IN
4 REC IN
5 ASS IN
6 PB SYNC IN
7 EIA/$\overline{\text{CCIR}}$ IN
8 U/$\overline{\beta}$ IN
9 BVU/$\overline{\text{INST}}$ IN
10 Vcc(D) (3.5V)
11 GND(D)
12 $\overline{\text{V-BLK}}$ IN
13 REC CTL OUT
14 FRAMING ON/$\overline{\text{OFF}}$ IN
15 TRACKING
16 CTL IN
17 FG(A) IN
18 FG(B) IN
19 4xFG OUT
20 CAPSTAN PHASE PWM OUT
21 $\overline{\text{CAPSTAN LOCK}}$ DET OUT
22 CAPSTAN REV DET OUT
23 CAPSTAN SPEED DET OUT
24 CAPSTAN SPEED PWM OUT
25 CVS I IN
26 CVSO IN
27 $\overline{\text{DRUM ROTATE}}$ DET OUT
28 SC IN
29 GND(A)
30 Vcc(A) (+5.4 to+5.9V)
31 DRUM SPEED PG CR
32 DRUM SPEED PG (A) IN
33 DRUM SPEED PG (B) IN
34 DRUM SPEED PWM OUT
35 TEST PIN
36 POWER ON RESET IN
37 DRUM PHASE PWM OUT
38 $\overline{\text{DRUM LOCK}}$ DET OUT
39 RF SW PULSE OUT
40 DRUM PHASE PG IN
41 SW POSITION-A CR
42 AFC ON/$\overline{\text{OFF}}$ IN



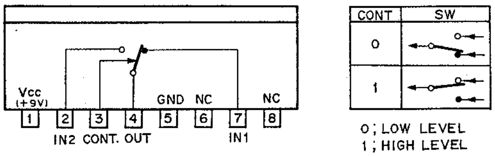
10 VCC (DIGITAL)
30 VCC (ANALOG)
31 DRUM SPEED PG CR
32 SPEED PG (A)
33 SPEED PG (B)
2 SW POSITION (B) CR
41 SW POSITION (A) CR
40 DRUM PHASE PG
1 H; ϕ^2ON
3 REF SYNC
14 H; FRAMING ON
6 PB SYNC
42 H; AFC ON
28 SUB CARRIER
17 FG (A)
18 FG (B)
15 TRACKING
16 PB CTL
25 CAPSTAN VSI
26 CAPSTAN VSO
4 H; REC
5 H; ASSEMBLE
7 H; EIA
8 H; U MATIC
9 H; BVU
SPEED MM
FF
S Q R $\overline{\text{Q}}$
fsc x 2 CLOCK
SPEED DET COUNTER
PWM
REF
DIS
POWER ON RESET 36
L; DRUM ROTATE 27
DRUM SPEED PWM 34
EXIST SYNC
D Q FF $\overline{\text{Q}}$
RF SW PULSE 39
PG GATE
SW POSITION MM
LOCK DET
L; DRUM LOCK 38
PHASE DET COUNTER
DRUM PHASE PWM 37
1/2VD
fsc x 1/4 CLOCK
FH/2 MM
V SYNC SEP
NOISE INHIBIT
FRAMING
REC
ASS +PB
ϕ^2 COMPARATOR
PB VD
SYNC DET
INT VD GEN
1/2 VD
V BLK PULSE GEN
V BLK PULSE 12
REV DET
H; CAPSTAN REV 22
fsc x 1/2 CLOCK
CSV I CSVO
CAPSTAN SPEED PWM 24
FGx4
4 x FG 19
1/4N COUNTER
RD
5V
2.5V
CAPSTAN SPEED 23
CAPSTAN SPEED DET
TRACKING MM
L; CAPSTAN LOCK 21
REC+ASS
PB
fsc x 1/32
CAPSTAN PHASE PWM 20
REC CTL 13
GND (DIGITAL) 11
GND (ANALOG) 29

CX20060 (SONY)
ANALOG SWITCH
— TOP VIEW —



6
5
4
Vcc (+12V)
GND
1
2
3
CONT. INPUT (PIN6)
SW
LOW OR OPEN
HIGH

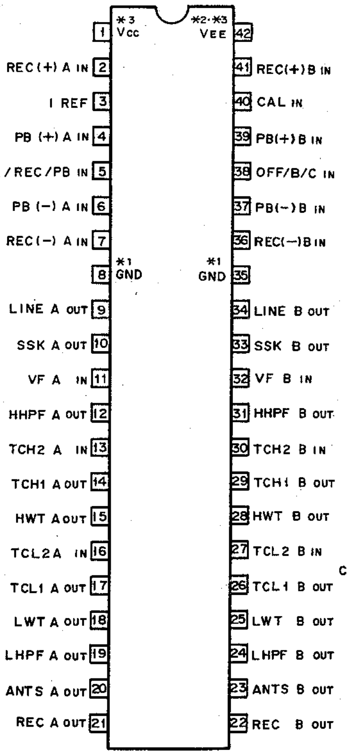
CX20061 (SONY)
ANALOG SWITCH
— SIDE VIEW —

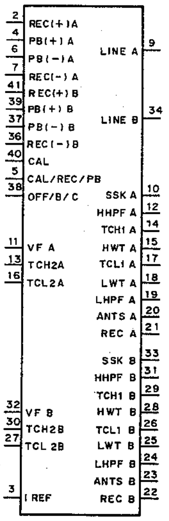


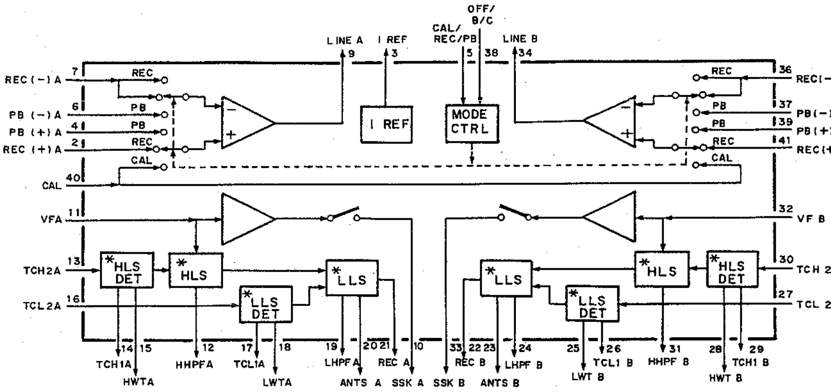
Vcc (+9V)
GND
NC
NC
1
2
3
4
5
6
7
8
IN2
CONT.
OUT
IN1
CONT
SW
0
1

0 ; LOW LEVEL
1 ; HIGH LEVEL

CX20188 (SONY)
DOLBY B TYPE AND C TYPE, NOISE REDUCTION SYSTEM
— TOP VIEW —


*3
Vcc
*2·*3
VEE
1
REC(+) A IN 2
I REF 3
PB (+) A IN 4
CAL / REC / PB IN 5
PB (−) A IN 6
REC(−) A IN 7
*1
GND
8
LINE A OUT 9
SSK A OUT 10
VF A IN 11
HHPF A OUT 12
TCH2 A IN 13
TCH1 A OUT 14
HWT A OUT 15
TCL2A IN 16
TCL1 A OUT 17
LWT A OUT 18
LHPF A OUT 19
ANTS A OUT 20
REC A OUT 21
42
41 REC(+)B IN
40 CAL IN
39 PB(+)B IN
38 OFF/B/C IN
37 PB(−)B IN
36 REC(−)B IN
*1
GND
35
34 LINE B OUT
33 SSK B OUT
32 VF B IN
31 HHPF B OUT
30 TCH2 B IN
29 TCH1 B OUT
28 HWT B OUT
27 TCL2 B IN
26 TCL1 B OUT
25 LWT B OUT
24 LHPF B OUT
23 ANTS B OUT
22 REC B OUT

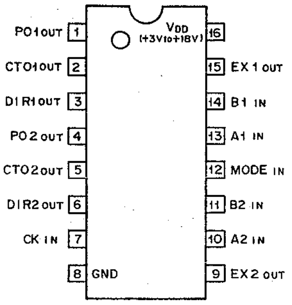

2 REC(+)A
4 PB(+) A
6 PB(−) A
7 REC(−) A
41 REC(+) B
39 PB(+) B
37 PB(−) B
36 REC(−) B
40 CAL
5 CAL/REC/PB
38 OFF/B/C
11 VF A
13 TCH2A
16 TCL2A
32 VF B
30 TCH2B
27 TCL 2B
3 I REF
LINE A 9
LINE B 34
SSK A 10
HHPF A 12
TCH1 A 14
HWT A 15
TCL1 A 17
LWT A 18
LHPF A 19
ANTS A 20
REC A 21
SSK B 33
HHPF B 31
TCH1 B 29
HWT B 28
TCL1 B 26
LWT B 25
LHPF B 24
ANTS B 23
REC B 22

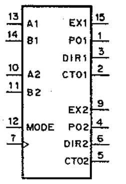

OFF/
B/C
CAL/
REC/PB
LINE A
I REF
LINE B
9
3
5
38
34
REC (−) A
PB (−) A
PB (+) A
REC (+) A
CAL
VFA
TCH2A
TCL2A
7
6
4
2
40
11
13
16
REC
PB
PB
REC
CAL
I REF
MODE
CTRL
*HLS
DET
*HLS
*LLS
DET
*LLS
REC(−) B
PB(−)B
PB(+)B
REC(+)B
VF B
TCH 2B
TCL 2B
36
37
39
41
32
30
27
14
15
12
17
18
19
20
21
10
33
22
23
24
25
26
31
28
29
TCH1A
HWTA
HHPFA
TCL1A
LWTA
LHPF A
ANTS A
REC A
SSK A
SSK B
REC B
ANTS B
LHPF B
LWT B
TCL1 B
HHPF B
HWT B
TCH1 B

ANTS	; ANTI SATURATION
CAL	; CALIBRATION
CAL/REC/PB	; CALIBRATION/REC/ PB SELECT
HHPF	; *HLS HIGH PASS FILTER
HWT	; *HLS WAITING
I REF	; REFERENCE SOURCE CURRENT
LHPF	; *LLS HIGH PASS FILTER
LWT	; *LLS WAITING
OFF/B/C	; DOLBY NR OFF/B-TYPE/C-TYPE SELECT
SSK	; SPECTRAL SKEWING SWITCH
TCH	; *HLS DETECTOR TIME CONSTANT
TCL	; *LLS DETECTOR TIME CONSTANT
VF	; ENCODE INPUT
*HLS	; HIGH LEVEL STAGE
*LLS	; LOW LEVEL STAGE

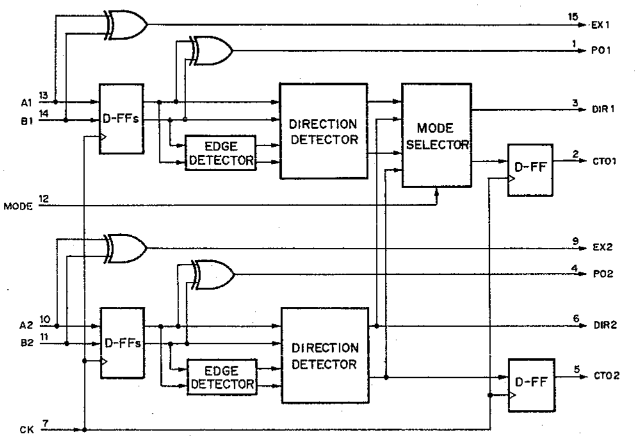
*1 ; ONE POWER→Vcc/2. TWO POWER→GND
*2 ; ONE POWER→GND. TWO POWER→VEE
*3 ; Vcc − VEE : +8 to +21V

CX23028 (SONY)
C-MOS SYNCHRONOUS ROTATIONAL DIRECTION DETECTOR
— TOP VIEW —


PO1 OUT 1
CTO1 OUT 2
DIR1 OUT 3
PO2 OUT 4
CTO2 OUT 5
DIR2 OUT 6
CK IN 7
8 GND
VDD (+3V to +18V) 16
15 EX 1 OUT
14 B1 IN
13 A1 IN
12 MODE IN
11 B2 IN
10 A2 IN
9 EX2 OUT


13 A1
14 B1
10 A2
11 B2
12 MODE
7
EX1 15
PO1 1
DIR1 3
CTO1 2
EX2 9
PO2 4
DIR2 6
CTO2 5

A,B ; SIGNAL INPUTS
EX ; A⊕B
PO ; A⊕B(SYNCHRONOUS)
DIR ; DIRECTION OUTPUT
CTO ; COUNT PULSE OUTPUT
MODE ; DIR1 & CTO1 MODE SELECT
⊕ ; EXCLUSIVE-OR

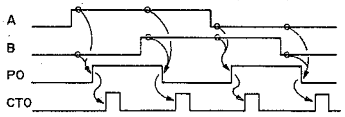

A1 13
B1 14
MODE 12
A2 10
B2 11
CK 7
D-FFs
EDGE DETECTOR
DIRECTION DETECTOR
MODE SELECTOR
D-FF
D-FFs
EDGE DETECTOR
DIRECTION DETECTOR
D-FF
15 EX1
1 PO1
3 DIR1
2 CTO1
9 EX2
4 PO2
6 DIR2
5 CTO2

MODE="1"

DIRECTION OUTPUT "DIR"

INPUTS	DIR
A∠B	1
B∠A	0

TIMING CHART "CTO"



MODE="0"

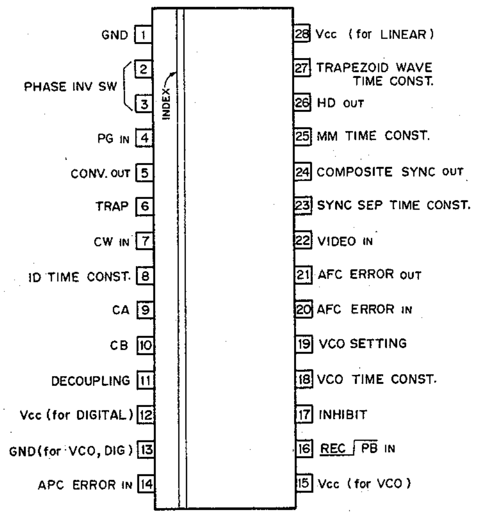
DIRECTION OUTPUT "DIR"

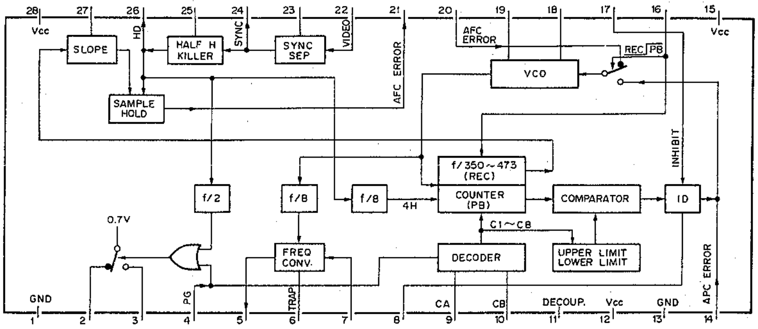
INPUTS		DIR 1	DIR 2
CH1	CH2		
A1∠B1	A2∠B2	1	THE SAME FUNCTION OF MODE "1"
B1∠A1	A2∠B2	OUTPUT "1" AND "0" ALTERNATELY	
A1∠B1	B2∠A2		
B1∠A1	B2∠A2	0	

CTO 1 ; CTO1 with MODE "0" = CTO1 with MODE "1" + CTO 2
CTO 2 ; THE SAME FUNCTION OF MODE "1"

1 ; HIGH LEVEL
0 ; LOW LEVEL
A∠B ; THE PHASE OF SIGNAL A IS IN ADVANCE FOR THE PHASE OF B.

CX 859 (SONY)
—TOP VIEW—


GND 1
PHASE INV SW 2
3
PG IN 4
CONV. OUT 5
TRAP 6
CW IN 7
ID TIME CONST. 8
CA 9
CB 10
DECOUPLING 11
Vcc (for DIGITAL) 12
GND (for VCO, DIG) 13
APC ERROR IN 14
INDEX
28 Vcc (for LINEAR)
27 TRAPEZOID WAVE TIME CONST.
26 HD OUT
25 MM TIME CONST.
24 COMPOSITE SYNC OUT
23 SYNC SEP TIME CONST.
22 VIDEO IN
21 AFC ERROR OUT
20 AFC ERROR IN
19 VCO SETTING
18 VCO TIME CONST.
17 INHIBIT
16 REC / PB IN
15 Vcc (for VCO)


Vcc
SLOPE
HD
HALF H KILLER
SYNC
SYNC SEP
VIDEO
AFC ERROR
AFC ERROR
VCO
REC PB
Vcc
SAMPLE HOLD
INHIBIT
f/350~473 (REC)
COUNTER (PB)
COMPARATOR
ID
f/2
f/8
f/8
4H
C1~C8
0.7V
FREQ CONV.
DECODER
UPPER LIMIT LOWER LIMIT
APC ERROR
GND
PG
TRAP
CA
CB
DECOUP.
Vcc
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

DECODER TRUTH TABLE

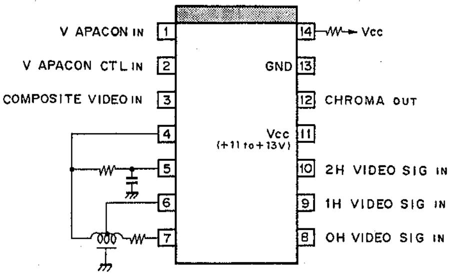
CB / CA	LOW	OPEN	HIGH
LOW	C1	C7	—
OPEN	C4	C5	C6
HIGH	—	*C2 C3	C8

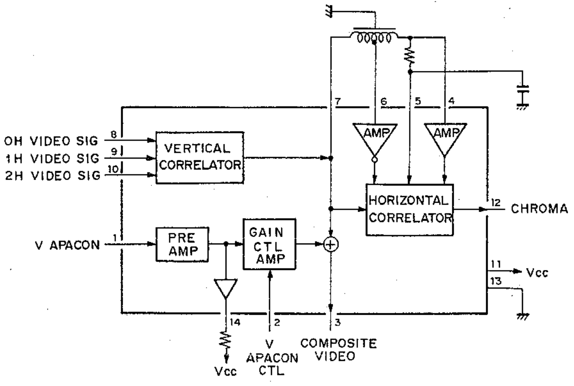
* PG : L--- C2
PG : H--- C3

AFC/APC PRESET DATA

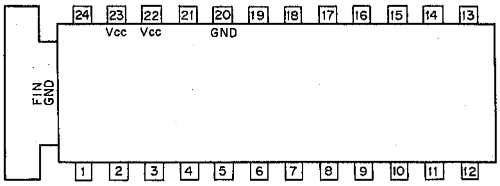
	AFC COUNT DOWN	APC ID COUNT	
		UPPER LIM.	LOWER LIM.
C1	f/473	105	95
C2	f/351	129	119
C3	f/353	137	127
C4	f/351	118	104
C5	f/351	131	117
C6	f/351	144	130
C7	f/350	136	104
C8	——	125	115

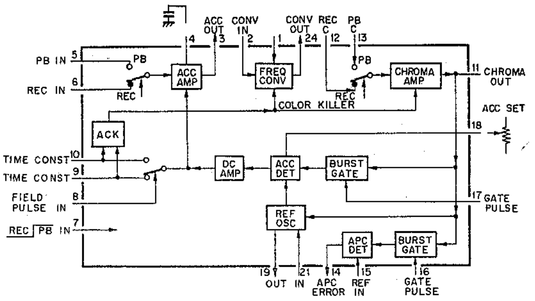
CX22013 (SONY)
DYNAMIC COMB FILTER
— TOP VIEW —


V APACON IN 1
V APACON CTL IN 2
COMPOSITE VIDEO IN 3
4
5
6
7
14 Vcc
GND 13
12 CHROMA OUT
Vcc (+11 to +13V) 11
10 2H VIDEO SIG IN
9 1H VIDEO SIG IN
8 OH VIDEO SIG IN

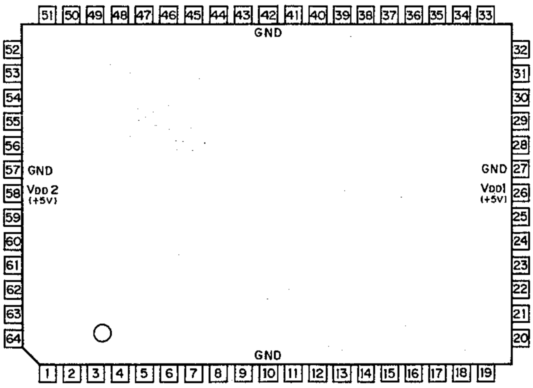

OH VIDEO SIG 8
1H VIDEO SIG 9
2H VIDEO SIG 10
VERTICAL CORRELATOR
7
6
5
4
AMP
AMP
HORIZONTAL CORRELATOR
12 CHROMA
V APACON 1
PRE AMP
GAIN CTL AMP
11 Vcc
13
14
2
3
Vcc
V APACON CTL
COMPOSITE VIDEO

CX872 (SONY)
— TOP VIEW —

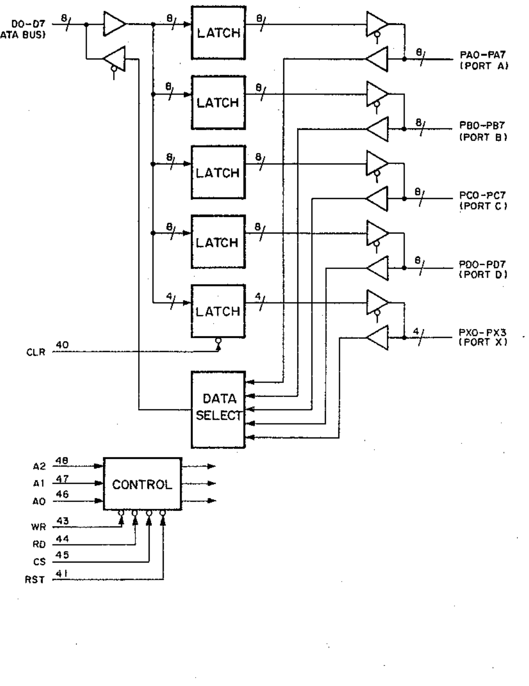

24
23
22
21
20
19
18
17
16
15
14
13
Vcc
Vcc
GND
FIN GND
1
2
3
4
5
6
7
8
9
10
11
12

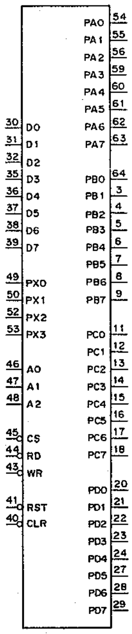

ACC OUT
CONV IN
CONV OUT
REC C
PB C
4
3
2
1
24
12
13
PB IN 5
REC IN 6
PB
REC
ACC AMP
FREQ CONV
PB
REC
CHROMA AMP
11 CHROMA OUT
COLOR KILLER
ACC SET
18
ACK
TIME CONST 10
TIME CONST 9
FIELD PULSE IN 8
REC PB IN 7
DC AMP
ACC DET
BURST GATE
17 GATE PULSE
REF OSC
APC DET
BURST GATE
19 OUT
21 IN
14 APC ERROR
15 REF IN
16 GATE PULSE

CXD1095Q (SONY) FLAT PACKAGE
C-MOS I/O PORT EXPANDER
— TOP VIEW —


51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33
GND
52 53 54 55 56 57 58 59 60 61 62 63 64
GND
VDD2 (+5V)
32 31 30 29 28 27 26 25 24 23 22 21 20
GND
VDD1 (+5V)
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1			NC	17	○	○	PC6	33			NC	49	○	○	PX0
2			NC	18	○	○	PC7	34			NC	50	○	○	PX1
3	○	○	PB1	19			NC	35	○	○	D3	51			NC
4	○	○	PB2	20	○	○	PD0	36	○	○	D4	52	○	○	PX2
5	○	○	PB3	21	○	○	PD1	37	○	○	D5	53	○	○	PX3
6	○	○	PB4	22	○	○	PD2	38	○	○	D6	54	○	○	PA0
7	○	○	PB5	23	○	○	PD3	39	○	○	D7	55	○	○	PA1
8	○	○	PB6	24	○	○	PD4	40	○		CLR	56	○	○	PA2
9	○	○	PB7	25			GND	41	○		RST	57			GND
10			GND	26	○		VDD (+5V)	42			GND	58	○		VDD (+5V)
11	○	○	PC0	27	○	○	PD5	43	○		WR	59	○	○	PA3
12	○	○	PC1	28	○	○	PD6	44	○		RD	60	○	○	PA4
13	○	○	PC2	29	○	○	PD7	45	○		CS	61	○	○	PA5
14	○	○	PC3	30	○	○	D0	46	○		A0	62	○	○	PA6
15	○	○	PC4	31	○	○	D1	47	○		A1	63	○	○	PA7
16	○	○	PC5	32	○	○	D2	48	○		A2	64	○	○	PB0


D0–D7 (DATA BUS)
8
LATCH
LATCH
LATCH
LATCH
LATCH
4
PA0–PA7 (PORT A)
PB0–PB7 (PORT B)
PC0–PC7 (PORT C)
PD0–PD7 (PORT D)
PX0–PX3 (PORT X)
CLR 40
DATA SELECT
CONTROL
A2 48
A1 47
A0 46
WR 43
RD 44
CS 45
RST 41

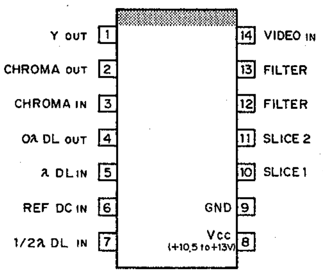

30 D0
31 D1
32 D2
35 D3
36 D4
37 D5
38 D6
39 D7
49 PX0
50 PX1
52 PX2
53 PX3
46 A0
47 A1
48 A2
45 CS
44 RD
43 WR
41 RST
40 CLR
PA0 54
PA1 55
PA2 56
PA3 59
PA4 60
PA5 61
PA6 62
PA7 63
PB0 64
PB1 3
PB2 4
PB3 5
PB4 6
PB5 7
PB6 8
PB7 9
PC0 11
PC1 12
PC2 13
PC3 14
PC4 15
PC5 16
PC6 17
PC7 18
PD0 20
PD1 21
PD2 22
PD3 23
PD4 24
PD5 27
PD6 28
PD7 29

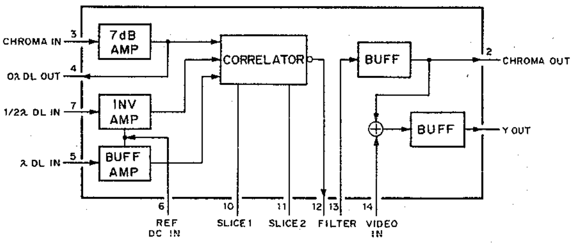
CS	RD	WR	A2	A1	A0	MODE
0	0	1	0	0	0	PORT A → DATA BUS
0	0	1	0	0	1	PORT B → DATA BUS
0	0	1	0	1	0	PORT C → DATA BUS
0	0	1	0	1	1	PORT D → DATA BUS
0	0	1	1	0	0	PORT X → DATA BUS
0	0	1	1	0	1	——
0	0	1	1	1	0	——
0	0	1	1	1	1	——
0	1	0	0	0	0	DATA BUS → PORT A
0	1	0	0	0	1	DATA BUS → PORT B
0	1	0	0	1	0	DATA BUS → PORT C
0	1	0	0	1	1	DATA BUS → PORT D
0	1	0	1	0	0	DATA BUS → PORT X
0	1	0	1	0	1	——
0	1	0	1	1	0	DATA BUS → CTL REG.1
0	1	0	1	1	1	DATA BUS → CTL REG.2
1	X	X	X	X	X	DATA BUS ; HI–Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI–Z, HIGH IMPEDANCE

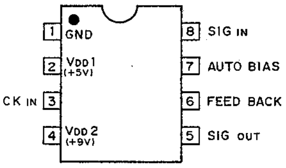
D0–D7 ; DATA BUS INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
RD ; READ STROBE INPUT
WR ; WRITE STROBE INPUT
A0–A2 ; ADDRESS INPUT
RST ; RESET INPUT
CLR ; CLEAR INPUT
PA0–PA7 ; PORT A INPUTS/OUTPUTS
PB0–PB7 ; PORT B INPUTS/OUTPUTS
PC0–PC7 ; PORT C INPUTS/OUTPUTS
PD0–PD7 ; PORT D INPUTS/OUTPUTS
PX0–PX3 ; PORT X INPUTS/OUTPUTS

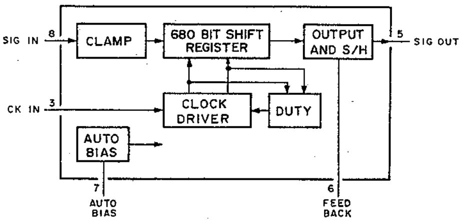
CXA1020P (SONY)
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR
— TOP VIEW —


Y OUT 1
CHROMA OUT 2
CHROMA IN 3
0λ DL OUT 4
λ DL IN 5
REF DC IN 6
1/2λ DL IN 7
14 VIDEO IN
13 FILTER
12 FILTER
11 SLICE 2
10 SLICE 1
GND 9
Vcc (+10.5 to +13V) 8

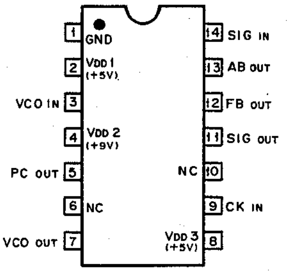

CHROMA IN 3
0λ DL OUT 4
1/2λ DL IN 7
λ DL IN 5
7dB AMP
INV AMP
BUFF AMP
CORRELATOR
BUFF
BUFF
2 CHROMA OUT
Y OUT
6 REF DC IN
10 SLICE 1
11 SLICE 2
12 13 FILTER
14 VIDEO IN

CXL5001P (SONY)
C-MOS CCD FOR NTSC 1H DELAY LINE
— TOP VIEW —

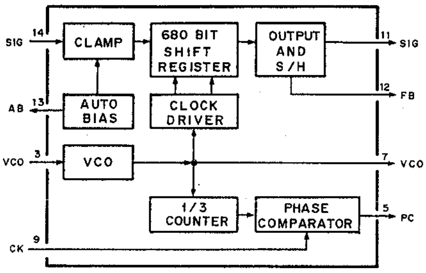

1 GND
2 VDD1 (+5V)
CK IN 3
4 VDD2 (+9V)
8 SIG IN
7 AUTO BIAS
6 FEED BACK
5 SIG OUT


SIG IN 8
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
5 SIG OUT
CK IN 3
CLOCK DRIVER
DUTY
AUTO BIAS
7 AUTO BIAS
6 FEED BACK

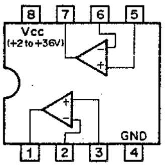
CXL5005P (SONY)
C-MOS CCD 1H DELAY LINE FOR NTSC
– TOP VIEW –


1 GND
2 VDD1 (+5V)
VCO IN 3
4 VDD2 (+9V)
PC OUT 5
6 NC
VCO OUT 7
14 SIG IN
13 AB OUT
12 FB OUT
11 SIG OUT
NC 10
9 CK IN
VDD3 (+5V) 8

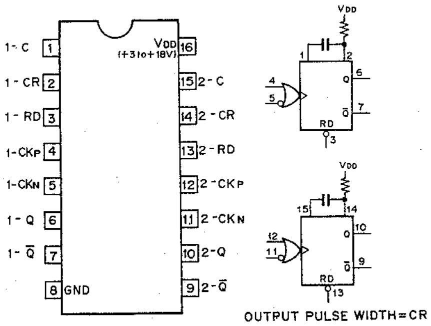
AB ; AUTO BIAS DC
FB ; FEEDBACK DC
PC ; PHASE COMPARATOR
SIG ; SIGNAL


SIG 14
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
11 SIG
12 FB
AB 13
AUTO BIAS
CLOCK DRIVER
VCO 3
VCO
7 VCO
1/3 COUNTER
PHASE COMPARATOR
5 PC
CK 9

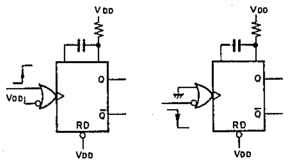
LM2903DQ (RAYTHEON)
VOLTAGE COMPARATOR
– TOP VIEW –


8 7 6 5
Vcc (+2 to +36V)
GND
1 2 3 4

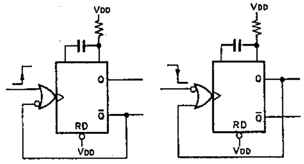
HD14538BP (HITACHI)
MC14538BCP (MOTOROLA)
TC4538BP
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
— TOP VIEW —


1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD (+3 to +18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄
VDD
RD
Q
Q̄
OUTPUT PULSE WIDTH=CR

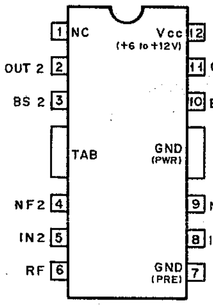
RETRIGGERABLE M.M.V



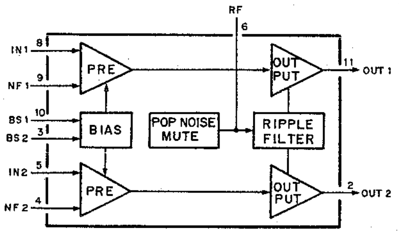
NON-RETRIGGERABLE M.M.V



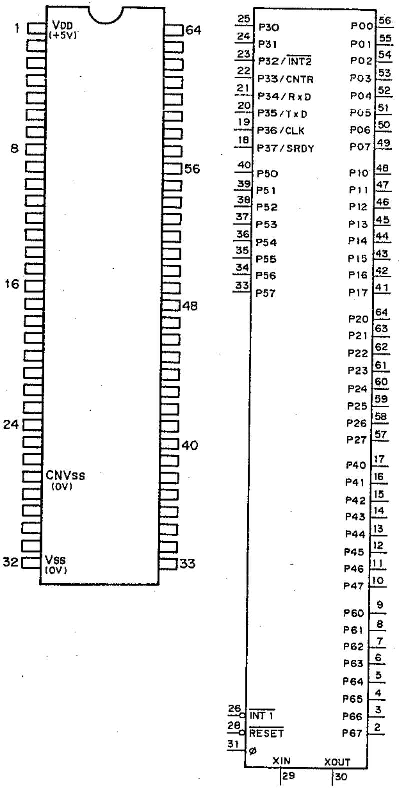
LA4550 (SANYO)
2CH AF POWER AMP
— TOP VIEW —


1 NC
OUT 2 2
BS 2 3
TAB
NF2 4
IN2 5
RF 6
Vcc (+6 to +12V) 12
11 OUT 1
10 BS1
GND (PWR)
9 NF1
8 IN 1
GND (PRE) 7

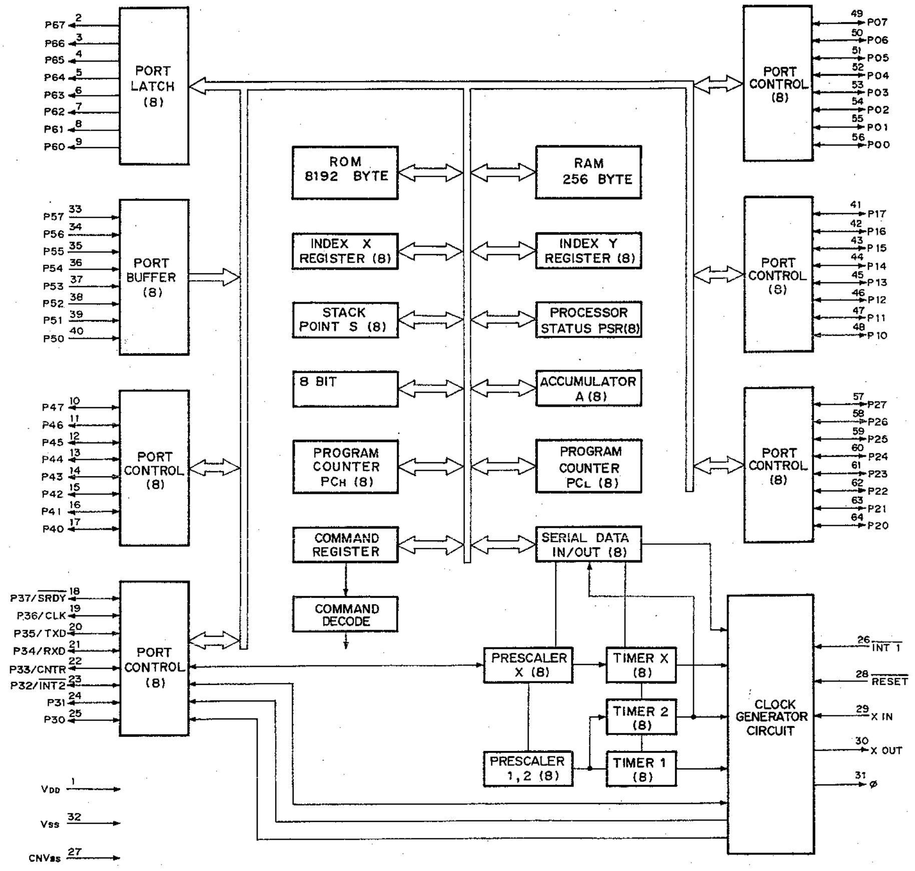
BS1, BS2	; BOOTSTRAP CAPACITOR
IN1, IN2	; INPUTS
NF1, NF2	; NEGATIVE FEEDBACK CONTROL
OUT1, OUT2	; OUTPUTS
RF	; RIPPLE FILTER


RF 6
IN1 8
NF1 9
BS1 10
BS2 3
IN2 5
NF2 4
PRE
BIAS
POP NOISE MUTE
OUT PUT
RIPPLE FILTER
11 OUT 1
2 OUT 2

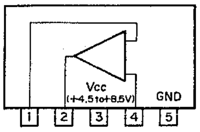
M50747H-XXXSP
C-MOS PROCESS 8-BIT ONE.CHIP MICROCOMPUTER
— TOP VIEW —


VDD (+5V)
CNVss (0V)
Vss (0V)
1
8
16
24
32
33
40
48
56
64
P30
P31
P32/INT2
P33/CNTR
P34/RxD
P35/TxD
P36/CLK
P37/SRDY
P50
P51
P52
P53
P54
P55
P56
P57
INT 1
RESET
ϕ
XIN
XOUT
P00
P01
P02
P03
P04
P05
P06
P07
P10
P11
P12
P13
P14
P15
P16
P17
P20
P21
P22
P23
P24
P25
P26
P27
P40
P41
P42
P43
P44
P45
P46
P47
P60
P61
P62
P63
P64
P65
P66
P67

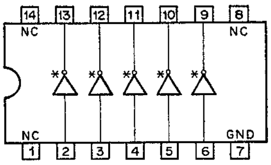
INT 1	; INTERRUPT 1 IN
P00–P07	; 8 BIT I/O PORT
P10–P17	; 8 BIT I/O PORT
P20–P27	; 8 BIT I/O PORT
P30–P37	; 8 BIT I/O PORT
P40–P47	; 8 BIT I/O PORT
P50–P57	; 8 BIT IN PORT
P60–P67	; 8 BIT OUT PORT
RESET	; RESET IN (⌐_)
X IN/OUT	; CLOCK IN/OUT
ϕ	; CLOCK TIMING OUT
P32/INT2	; PORT/INTERRUP2 IN/OUT
P33/CNTR	; PORT/CONTROL IN/OUT
P34/RXD	; RECEIVED DATA
P35/TXD	; TRANCEMITTED DATA
P36/CLK	; PORT/CLOCK IN/OUT
P37/SRDY	; SERIAL IN READY


PORT LATCH (8)
PORT BUFFER (8)
PORT CONTROL (8)
ROM 8192 BYTE
RAM 256 BYTE
INDEX X REGISTER (8)
INDEX Y REGISTER (8)
STACK POINT S (8)
PROCESSOR STATUS PSR(8)
8 BIT
ACCUMULATOR A (8)
PROGRAM COUNTER PCH (8)
PROGRAM COUNTER PCL (8)
COMMAND REGISTER
SERIAL DATA IN/OUT (8)
COMMAND DECODE
PRESCALER X (8)
TIMER X (8)
TIMER 2 (8)
PRESCALER 1,2 (8)
TIMER 1 (8)
CLOCK GENERATOR CIRCUIT
INT 1
RESET
X IN
X OUT
ϕ
VDD
Vss
CNVss
P37/SRDY
P36/CLK
P35/TXD
P34/RXD
P33/CNTR
P32/INT2
P31
P30

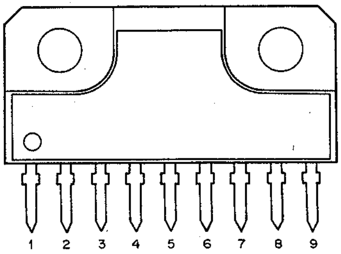
M5215L (MUTSUBISHI)
FM IF AMPLIFIER
— REAR VIEW —

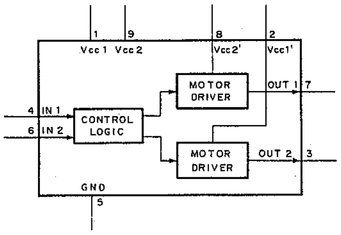

Vcc (+4.5to+8.5V)
GND
1
2
3
4
5

M54516P (MITSUBISHI)
INVERTER WITH OPEN-COLLECTOR
(DARLINGTON-CONNECTED TRANSISTOR ARRAY)
— TOP VIEW —


14
13
12
11
10
9
8
NC
NC
NC
GND
1
2
3
4
5
6
7

M54543L (MITSUBISHI)
BI-DIRECTIONAL MOTOR DRIVER
— SIDE VIEW —

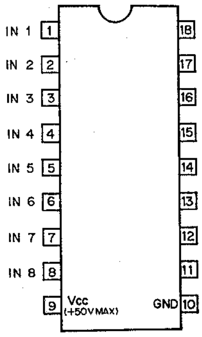


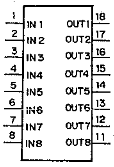

Vcc 1
Vcc 2
Vcc2'
Vcc1'
IN 1
IN 2
CONTROL LOGIC
MOTOR DRIVER
MOTOR DRIVER
OUT 1
OUT 2
GND
1
9
8
2
4
6
7
3
5

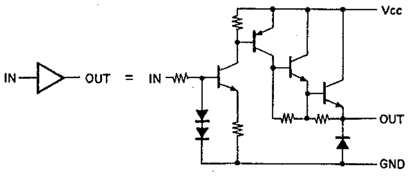
IN 1	IN 2	OUT 1	OUT 2	MODE
0	0	Z	Z	NO OPERATION
1	0	1	0	ROTATION
0	1	0	1	REVERSE ROTATION
1	1	0	0	BRAKE

0 : LOW LEVEL
1 : HIGH LEVEL
Z : HIGH IMPEDANCE

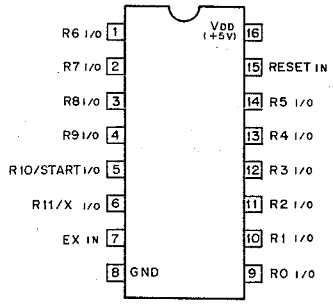
M54562P (MITSUBISHI)
SOURCE TYPE DARLINGTON TRANSISTOR ARRAY
— TOP VIEW —

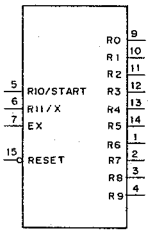

IN 1 1
IN 2 2
IN 3 3
IN 4 4
IN 5 5
IN 6 6
IN 7 7
IN 8 8
9 Vcc (+50V MAX)
GND 10
18 OUT 1
17 OUT 2
16 OUT 3
15 OUT 4
14 OUT 5
13 OUT 6
12 OUT 7
11 OUT 8


1 IN1
2 IN2
3 IN3
4 IN4
5 IN5
6 IN6
7 IN7
8 IN8
OUT1 18
OUT2 17
OUT3 16
OUT4 15
OUT5 14
OUT6 13
OUT7 12
OUT8 11

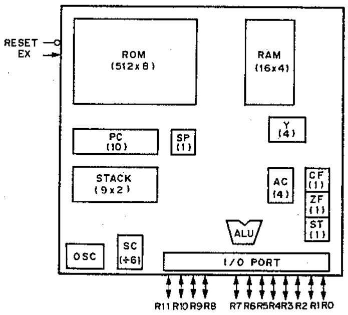

IN
OUT
=
IN
Vcc
OUT
GND

MB88201H (FUJITSU)
C-MOS 4 BIT MICROCOMPUTER
— TOP VIEW —

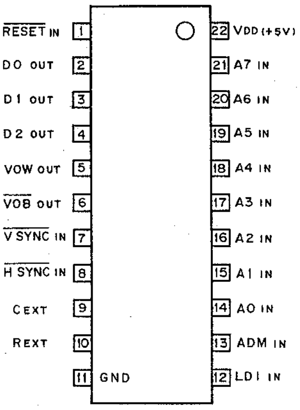

R6 I/O 1
R7 I/O 2
R8 I/O 3
R9 I/O 4
R10/START I/O 5
R11/X I/O 6
EX IN 7
8 GND
VDD (+5V) 16
15 RESET IN
14 R5 I/O
13 R4 I/O
12 R3 I/O
11 R2 I/O
10 R1 I/O
9 R0 I/O

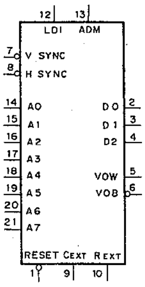

5 R10/START
6 R11/X
7 EX
15 RESET
R0 9
R1 10
R2 11
R3 12
R4 13
R5 14
R6 1
R7 2
R8 3
R9 4

EX ; EXTERNAL X'TAL IN
R0–R11 ; I/O PORT(R) IN/OUT
RESET ; RESET IN
START ; STANDBY RELEASE IN
R11/X ; EXT CLOCK IN/INT CLOCK OUT

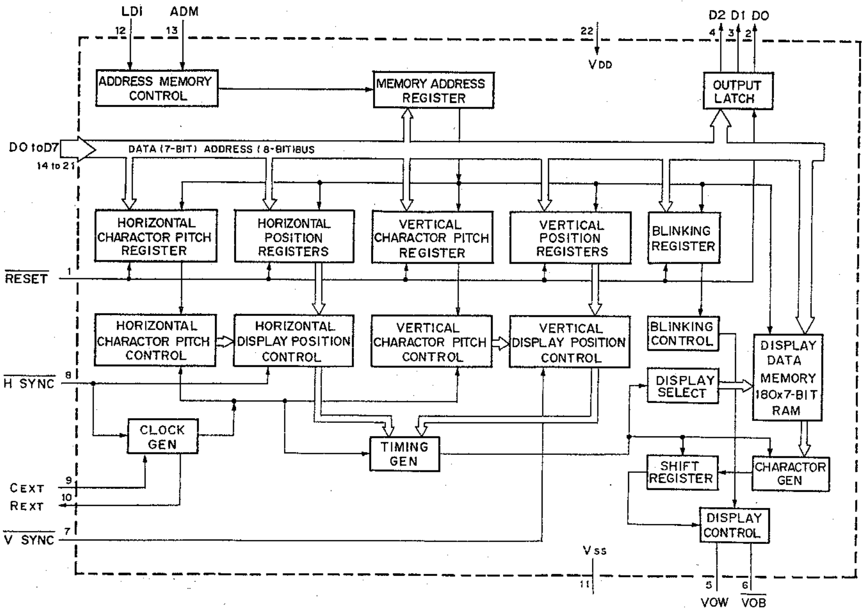

RESET
EX
ROM (512x8)
RAM (16x4)
PC (10)
SP (1)
Y (4)
STACK (9x2)
AC (4)
CF (1)
ZF (1)
ST (1)
ALU
OSC
SC (÷6)
I/O PORT
R11 R10 R9 R8 R7 R6 R5 R4 R3 R2 R1 R0

MB88303 (FUJITSU)
N-MOS PROGRAMMABLE TV DISPLAY CONTROLLER
— TOP VIEW —


RESET IN 1
D0 OUT 2
D1 OUT 3
D2 OUT 4
VOW OUT 5
VOB OUT 6
V SYNC IN 7
H SYNC IN 8
CEXT 9
REXT 10
11 GND
22 VDD (+5V)
21 A7 IN
20 A6 IN
19 A5 IN
18 A4 IN
17 A3 IN
16 A2 IN
15 A1 IN
14 A0 IN
13 ADM IN
12 LDI IN

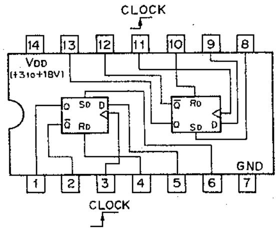

12 LDI
13 ADM
7 V SYNC
8 H SYNC
14 A0
15 A1
16 A2
17 A3
18 A4
19 A5
20 A6
21 A7
D0 2
D1 3
D2 4
VOW 5
VOB 6
RESET 1
CEXT 9
REXT 10

ADM ; ADDRESS INCREMENT MODE
A0 to A7 ; ADDRESS INPUT
D0 to D2 ; DATA OUTPUT
CEXT ; EXT CAPACITOR FOR OSC
LDI ; LOAD DATA AND INSTRUCTION
VOB ; VIDEO BLACK OUT
VOW ; VIDEO WHITE OUT
REXT ; EXT RESISTOR FOR OSC


LDI
ADM
12
13
22
VDD
D2 D1 D0
4 3 2
ADDRESS MEMORY CONTROL
MEMORY ADDRESS REGISTER
OUTPUT LATCH
D0 to D7
14 to 21
DATA (7-BIT) ADDRESS (8-BIT) BUS
HORIZONTAL CHARACTOR PITCH REGISTER
HORIZONTAL POSITION REGISTERS
VERTICAL CHARACTOR PITCH REGISTER
VERTICAL POSITION REGISTERS
BLINKING REGISTER
RESET
1
HORIZONTAL CHARACTOR PITCH CONTROL
HORIZONTAL DISPLAY POSITION CONTROL
VERTICAL CHARACTOR PITCH CONTROL
VERTICAL DISPLAY POSITION CONTROL
BLINKING CONTROL
DISPLAY DATA MEMORY 180x7-BIT RAM
H SYNC
8
DISPLAY SELECT
CLOCK GEN
TIMING GEN
SHIFT REGISTER
CHARACTOR GEN
CEXT
9
REXT
10
DISPLAY CONTROL
V SYNC
7
Vss
11
5
6
VOW
VOB

b3-b0 / b5-b4	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
00	A	B	C	D	E	F	G	H	I	J	K	L	M	·	␣	BLANK
01	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	:	█	(
10	0	1	2	3	4	5	6	7	8	9	?	!	’	.	BACK	)
11	↑	↓	←	→	+	−	*	/	=	&						

MC14013BCP (MOTOROLA)
C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
— TOP VIEW —


CLOCK
14
13
12
11
10
9
8
VDD
(+3 to +18V)
SD
RD
Q
Q̄
D
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP FLOP

SD	RD	Q	$\overline{Q}$
0	0	Qn	$\overline{Qn}$
0	1	0	1
1	0	1	0
1	1	1	1

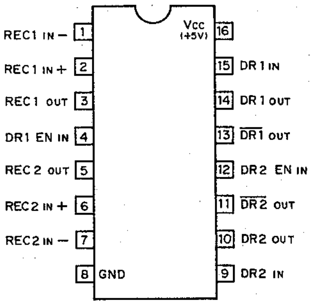
O: LOW LEVEL
1: HIGH LEVEL

D-TYPE FLIP FLOP

CKn	CKn+1
D	Q
0	0
1	1

CLOCK CK; _⌐
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK

MC34051P (MOTOROLA)
RS-422 DRIVER/RECEIVER
— TOP VIEW —

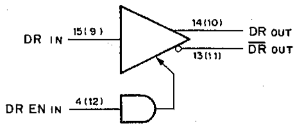

REC1 IN −
REC1 IN +
REC1 OUT
DR1 EN IN
REC2 OUT
REC2 IN +
REC2 IN −
GND
1
2
3
4
5
6
7
8
Vcc
(+5V)
16
15
14
13
12
11
10
9
DR1 IN
DR1 OUT
$\overline{DR1}$ OUT
DR2 EN IN
$\overline{DR2}$ OUT
DR2 OUT
DR2 IN

DR EN	MODE
0	DISABLE
1	ENABLE

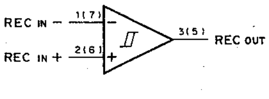
0 ; LOW LEVEL
1 ; HIGH LEVEL

DR ; DRIVER
DR EN ; DRIVER ENABLE
REC ; RECEIVER

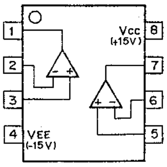
DRIVER CIRCUIT


DR IN
15(9)
14(10)
DR OUT
$\overline{DR}$ OUT
13(11)
DR EN IN
4(12)

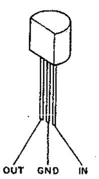
RECEIVER CIRCUIT


REC IN −
1(7)
REC IN +
2(6)
3(5)
REC OUT

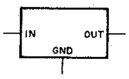
RC2043DD (RAYTHEON)
OPERATIONAL AMPLIFIER
– TOP VIEW –


1
2
3
4
VEE
(-15V)
Vcc
(+15V)
8
7
6
5

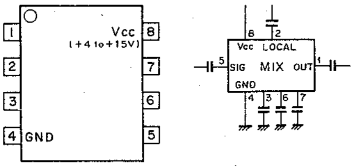
RC78L ? ?A (RAYTHEON)
POSITIVE VOLTAGE REGULATOR (100mA)



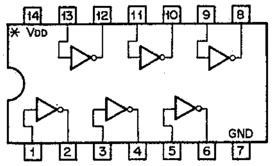
OUTPUT VOLTAGE	RC78L??A
+2.6V	RC78L02A
+4V	--------
+5V	RC78L05A
+6V	RC78L06A
+6.2V	--------
+7V	--------
+8V	RC78L08A
+8.2V	--------
+9V	RC78L09A
+10V	--------
+12V	RC78L12A
+15V	RC78L15A
+18V	RC78L18A
+20V	RC78L20A
+24V	RC78L24A

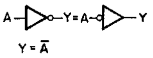


SN16913P (TI)
BALANCED MIXER
— TOP VIEW —


1
2
3
4
GND
Vcc
(+4 to +15V)
8
7
6
5
8
2
Vcc
LOCAL
5
SIG
MIX
OUT
1
GND
4
3
6
7

SN74HC04N (TI)
C-MOS INVERTER
– TOP VIEW –


14
13
12
11
10
9
8
* VDD
GND
1
2
3
4
5
6
7



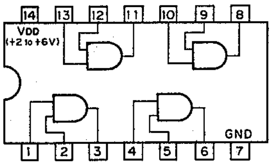
Y = $\overline{A}$

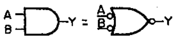
A	Y
0	1
1	0

0: LOW LEVEL
1: HIGH LEVEL

* VDD HC, HCU; +2 to +6V
HCT; +5V

SN74HC08N (TI)
C-MOS 2-INPUT AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7

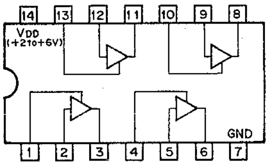


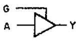
Y = A·B = $\overline{\overline{A}+\overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

SN74HC126N (TI)
C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7

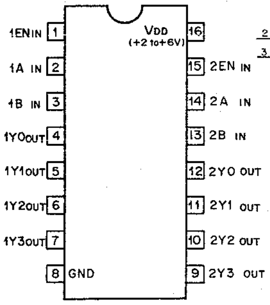


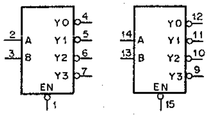
G	A	Y
1	1	1
1	0	0
0	X	HI-Z

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

SN74HC139N (TI) (V_{DD} = +2 to +6V)

C-MOS 1-OF-4 DECODER/DEMULTIPLEXER
– TOP VIEW –


1EN IN
1A IN
1B IN
1Y0 OUT
1Y1 OUT
1Y2 OUT
1Y3 OUT
GND
1
2
3
4
5
6
7
8
VDD
(+2 to +6V)
16
15
14
13
12
11
10
9
2EN IN
2A IN
2B IN
2Y0 OUT
2Y1 OUT
2Y2 OUT
2Y3 OUT

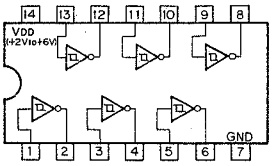

2
A
3
B
Y0
Y1
Y2
Y3
4
5
6
7
EN
1
14
A
13
B
Y0
Y1
Y2
Y3
12
11
10
9
EN
15

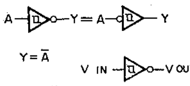
INPUTS			OUTPUTS			
EN	B	A	Y3	Y2	Y1	Y0
0	0	0	1	1	1	0
0	0	1	1	1	0	1
0	1	0	1	0	1	1
0	1	1	0	1	1	1
1	X	X	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

SN74HC14N (TI)

C-MOS SCHMITT TRIGGER INVERTER
– TOP VIEW –

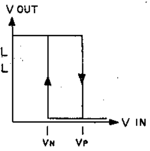

14
13
12
11
10
9
8
VDD
(+2V to +6V)
GND
1
2
3
4
5
6
7


A
Y = A
Y
V IN
V OUT

$Y=\overline{A}$

A	Y
0	1
1	0

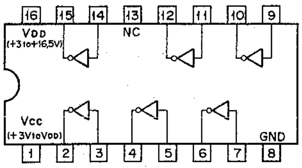
0; LOW LEVEL
1; HIGH LEVEL

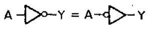


VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

TC4009UBP (TOSHIBA)

C-MOS INVERTING TYPE BUFFER/CONVERTER (TO TTL LEVEL)
— TOP VIEW —

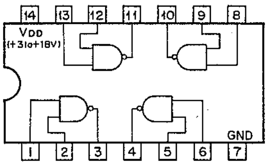

16
15
14
13
12
11
10
9
VDD
(+3 to +16,5V)
NC
Vcc
(+3V to VDD)
GND
1
2
3
4
5
6
7
8

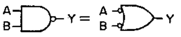


A	Y
0	1
1	0

TC4011BP (TOSHIBA)

C-MOS 2-INPUT NAND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7



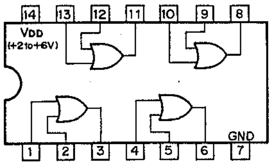
$Y=\overline{A\cdot B}=\overline{A}+\overline{B}$

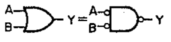
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74HC32N (TI)

C-MOS 2-INPUT OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+2 to +6V)
GND
1
2
3
4
5
6
7



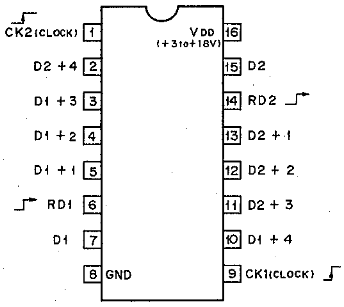
$Y=A+B=\overline{\overline{A}\cdot\overline{B}}$

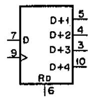
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

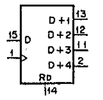
0; LOW LEVEL
1; HIGH LEVEL

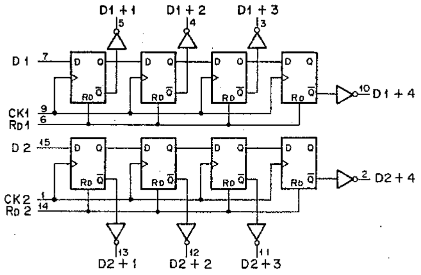
TC4015BP (TOSHIBA)

C-MOS DUAL 4-STAGE STATIC SHIFT REGISTER WITH DIRECT RESET
— TOP VIEW —


CK2 (CLOCK) 1
D2 + 4 2
D1 + 3 3
D1 + 2 4
D1 + 1 5
RD1 6
D1 7
8 GND
VDD (+3 to +18V) 16
15 D2
14 RD2
13 D2 + 1
12 D2 + 2
11 D2 + 3
10 D1 + 4
9 CK1 (CLOCK)

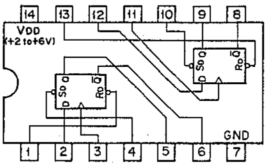

7
D
9
D+1 5
D+2 4
D+3 3
D+4 10
RD
6


15
D
1
D+1 13
D+2 12
D+3 11
D+4 2
RD
14


D1 + 1
5
D1 + 2
4
D1 + 3
3
D1
7
D
Q
RD
Q̄
10
D1 + 4
CK1
9
RD1
6
D2
15
2
D2 + 4
CK2
1
RD 2
14
13
D2 + 1
12
D2 + 2
11
D2 + 3

SN74HC74N (TI)

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
– TOP VIEW –

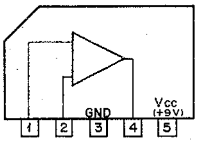

14
13
12
11
10
9
8
VDD
(+2 to +6V)
SD
RD
GND
1
2
3
4
5
6
7

INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1*	1*
1	1	⎍	1	1	0
1	1	⎍	0	0	1
1	1	0	X	Qn	$\overline{Q}$n

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
1*; NONSTABLE

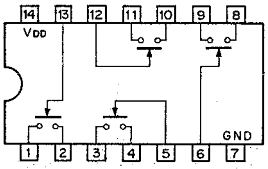
TA7060AP (TOSHIBA)

LINEAR AMP
— SIDE VIEW —


GND
Vcc
(+9V)
1
2
3
4
5

TC4016BPHB (TOSHIBA)

C-MOS BILATERAL SWITCH
— TOP VIEW —

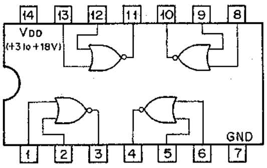

14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7

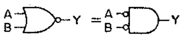
CONT IN	SW
0	OFF
1	ON

0; LOW LEVEL
1; HIGH LEVEL

TC4001UBP (TOSHIBA)

C-MOS 2-INPUT NOR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7

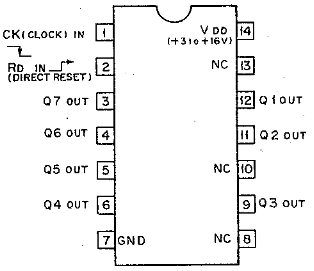


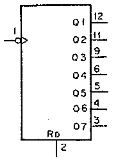
$Y=\overline{A+B}=\overline{A}\cdot\overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

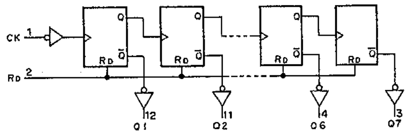
TC4024BP (TOSHIBA)
C-MOS ASYNCHRONOUS 7-BIT BINARY COUNTER
— TOP VIEW —


CK(CLOCK) IN 1
RD IN (DIRECT RESET) 2
Q7 OUT 3
Q6 OUT 4
Q5 OUT 5
Q4 OUT 6
7 GND
VDD (+3 to +16V) 14
NC 13
12 Q1 OUT
11 Q2 OUT
NC 10
9 Q3 OUT
NC 8

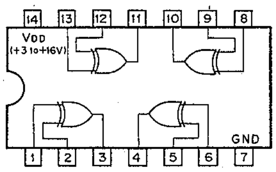

1
O1 12
O2 11
O3 9
O4 6
O5 5
O6 4
O7 3
RD
2

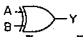
COUNT	INPUTS		OUTPUTS						
	CK	RD	Q7	Q6	Q5	Q4	Q3	Q2	Q1
0	X	1	0	0	0	0	0	0	0
1	↓	0	0	0	0	0	0	0	1
2	↓	0	0	0	0	0	0	1	0
3	↓	0	0	0	0	0	0	1	1
4	↓	0	0	0	0	0	1	0	0
	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
125	↓	0	1	1	1	1	1	0	1
126	↓	0	1	1	1	1	1	1	0
127	↓	0	1	1	1	1	1	1	1
—	0	0	NO CHANGE						
—	1	0							

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE


CK 1
RD 2
Q
Q̄
RD
12
Q1
11
Q2
4
Q6
3
Q7

TC4030BPHB (TOSHIBA)
C-MOS EXCLUSIVE OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +16V)
GND
1
2
3
4
5
6
7

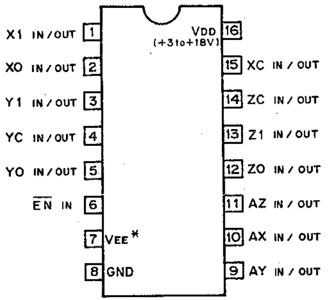


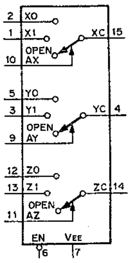
$Y = \bar{A} \cdot B + A \cdot \bar{B}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0;LOW LEVEL
1;HIGH LEVEL

TC4053BP (TOSHIBA)
TC4053BPHB (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN̄ IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT

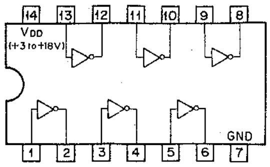

2 X0
1 X1
OPEN
10 AX
XC 15
5 Y0
3 Y1
OPEN
9 AY
YC 4
12 Z0
13 Z1
OPEN
11 AZ
ZC 14
EN
VEE
6
7

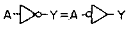
VEE*; VDD−VEE = +3 to +18 V

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN̄	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

TC4069UBP (TOSHIBA)
C-MOS INVERTER
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +18V)
GND
1
2
3
4
5
6
7

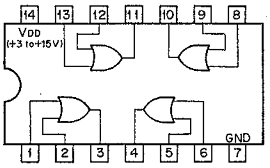


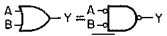
$Y = \bar{A}$

A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

TC4071BP (TOSHIBA)
C-MOS 2-INPUT OR GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +15V)
GND
1
2
3
4
5
6
7

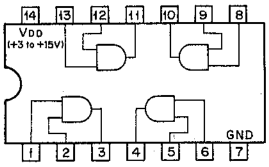


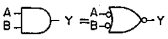
$Y = A + B = \overline{\bar{A} \cdot \bar{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC4081BP (TOSHIBA)
C-MOS 2-INPUT AND GATE
— TOP VIEW —


14
13
12
11
10
9
8
VDD
(+3 to +15V)
GND
1
2
3
4
5
6
7

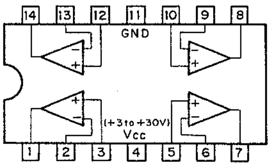


$Y = A \cdot B = \overline{\bar{A} + \bar{B}}$

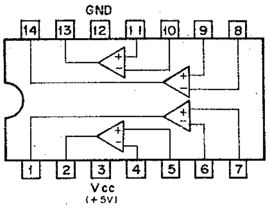
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0;LOW LEVEL
1;HIGH LEVEL

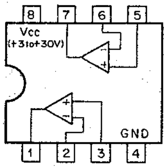
uPC324C (NEC)
QUAD. OP AMPLIFIER
— TOP VIEW —


14
13
12
11
10
9
8
GND
(+3 to +30V)
Vcc
1
2
3
4
5
6
7

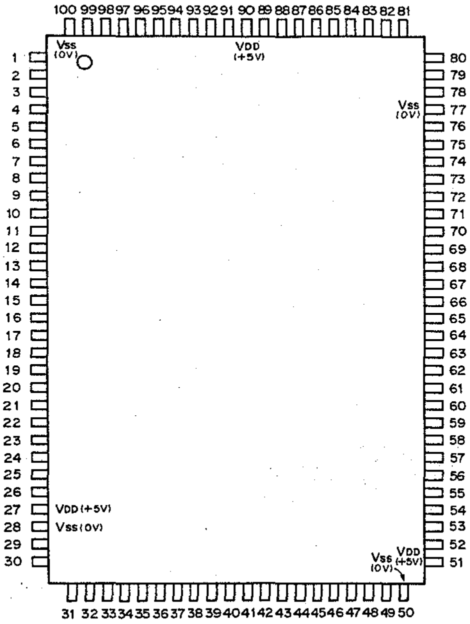
uPC339C (NEC)
COMPARATOR
— TOP VIEW —


GND
14
13
12
11
10
9
8
1
2
3
4
5
6
7
Vcc
(+5V)

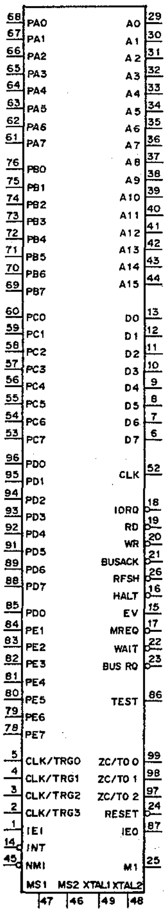
uPC358C (NEC)
DUAL OPERATIONAL AMPLIFIERS
— TOP VIEW —


8
7
6
5
Vcc
(+3 to +30V)
GND
1
2
3
4

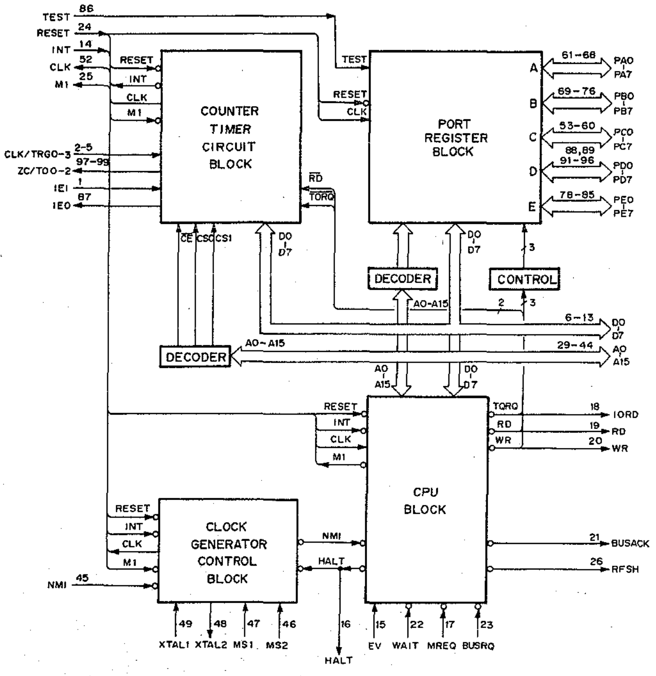
TMPZ84C011AF (TOSHIBA)
C-MOS 8 BIT MICROPROCESSOR
— TOP VIEW —


Vss (0V)
VDD (+5V)
Vss (0V)
VDD (+5V)
Vss (0V)
VDD (+5V)
Vss (0V)
1
30
31
50
51
80
81
100

NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1	○		IEI	51			Vcc
2	○		CLK/TRG3	52		○	CLK
3	○		CLK/TRG2	53	○	○	PC7
4	○		CLK/TRG1	54	○	○	PC6
5	○		CLK/TRG0	55	○	○	PC5
6	○	○	D7	56	○	○	PC4
7	○	○	D6	57	○	○	PC3
8	○	○	D5	58	○	○	PC2
9	○	○	D4	59	○	○	PC1
10	○	○	D3	60	○	○	PC0
11	○	○	D2	61	○	○	PA7
12	○	○	D1	62	○	○	PA6
13	○	○	D0	63	○	○	PA5
14	○		$\overline{\text{INT}}$	64	○	○	PA4
15	○		EV	65	○	○	PA3
16		○	$\overline{\text{HALT}}$	66	○	○	PA2
17		○	$\overline{\text{MREQ}}$	67	○	○	PA1
18		○	$\overline{\text{IORQ}}$	68	○	○	PA0
19		○	$\overline{\text{RD}}$	69	○	○	PB7
20		○	$\overline{\text{WR}}$	70	○	○	PB6
21		○	$\overline{\text{BUSACK}}$	71	○	○	PB5
22	○		$\overline{\text{WAIT}}$	72	○	○	PB4
23	○		$\overline{\text{BUSREQ}}$	73	○	○	PB3
24	○		$\overline{\text{RESET}}$	74	○	○	PB2
25		○	$\overline{\text{M1}}$	75	○	○	PB1
26		○	$\overline{\text{RFSH}}$	76	○	○	PB0
27			Vcc	77			Vss
28			Vss	78	○	○	PE7
29		○	A0	79	○	○	PE6
30		○	A1	80	○	○	PE5
31		○	A2	81	○	○	PE4
32		○	A3	82	○	○	PE3
33		○	A4	83	○	○	PE2
34		○	A5	84	○	○	PE1
35		○	A6	85	○	○	PE0
36		○	A7	86	○		TEST
37		○	A8	87		○	IE0
38		○	A9	88	○	○	PD7
39		○	A10	89	○	○	PD6
40		○	A11	90			Vcc
41		○	A12	91	○	○	PD5
42		○	A13	92	○	○	PD4
43		○	A14	93	○	○	PD3
44		○	A15	94	○	○	PD2
45	○		$\overline{\text{NMI}}$	95	○	○	PD1
46	○		MS2	96	○	○	PD0
47	○		MS1	97		○	ZC/TO2
48		○	XTAL2	98		○	ZC/TO1
49	○		XTAL1	99		○	ZC/TO0
50			Vss	100			Vss

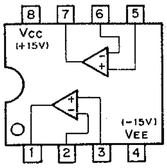

PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
CLK/TRG0
CLK/TRG1
CLK/TRG2
CLK/TRG3
IEI
INT
NMI
MS1
MS2
XTAL1
XTAL2
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
D0
D1
D2
D3
D4
D5
D6
D7
CLK
IORQ
RD
WR
BUSACK
RFSH
HALT
EV
MREQ
WAIT
BUS RQ
TEST
ZC/TO 0
ZC/TO 1
ZC/TO 2
RESET
IEO
M1

A0-A15 ; 3-STATE ADDRESS BUS OUTPUTS
BUSACK ; BUS ACKNOWLEDGE OUTPUT
BUS REQ ; BUS REQUEST INPUT
CLK ; CLOCK OUTPUT
CLK/TRG0-3 ; EXTERNAL CLOCK / TIMER TRIGGER0-3 INPUTS
D0-D7 ; 3-STATE DATA BUS INPUTS/OUTPUTS
EV ; *EVALUATER INPUT*
HALT ; HALT OUTPUT
IEI/IEO ; CTC INTERRUPT ENABLE INPUT/OUTPUT
INT ; MASKABLE INTERRUPT REQUEST INPUT
IORQ ; 3-STATE I/O REQUEST OUTPUT
M1 ; 3-STATE MACHINE CYCLE 1 OUTPUT
MREQ ; 3-STATE REQUEST OUTPUT
MS1/MS2 ; MODE SELECT 1/2 INPUTS
NMI ; NON-MASKABLE INTERRUPT REQUEST INPUT
PA0-PA7 ;
PB0-PB7 ;
PC0-PC7 ; } 3-STATE I/O PORT
PD0-PD7 ;
PE0-PE7 ;
RD ; 3-STATE READ OUTPUT
RESET ; RESET INPUT
RFSH ; REFRESH OUTPUT
TEST ; TEST INPUT
WAIT ; WAIT REQUEST INPUT
WR ; 3-STATE WRITE OUTPUT
ZC/TO0-2 ; ZERO COUNT/TIME OUT 0-2 OUTPUTS

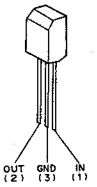

TEST 86
RESET 24
INT 14
CLK 52
M1 25
CLK/TRG0-3 2-5
ZC/TO0-2 97-99
IEI 1
IEO 87
COUNTER TIMER CIRCUIT BLOCK
RESET
INT
CLK
M1
RD
IORQ
CE CS0 CS1
D0 D7
PORT REGISTER BLOCK
TEST
RESET
CLK
A
B
C
D
E
61-68 PA0 PA7
69-76 PB0 PB7
53-60 PC0 PC7
88,89 91-96 PD0 PD7
78-85 PE0 PE7
DECODER
CONTROL
A0-A15
2
3
6-13 D0 D7
29-44 A0 A15
DECODER
A0-A15
A0 A15
D0 D7
CPU BLOCK
IORQ
RD
WR
18 IORD
19 RD
20 WR
21 BUSACK
26 RFSH
CLOCK GENERATOR CONTROL BLOCK
NMI 45
NMI
HALT
49 XTAL1
48 XTAL2
47 MS1
46 MS2
16 HALT
15 EV
22 WAIT
17 MREQ
23 BUSRQ

IC, TRANSISTOR

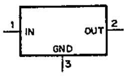
uPC4558C (NEC)
OPERATIONAL AMPLIFIER
– TOP VIEW –


8
7
6
5
Vcc
(+15V)
−
+
+
−
(−15V)
VEE
1
2
3
4

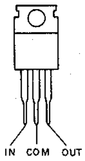
uPC78L ? ?A (NEC)
POSITIVE VOLTAGE REGULATOR (100mA)


OUT
(2)
GND
(3)
IN
(1)

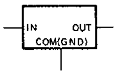
OUTPUT VOLTAGE	uPC78L??	UPC78L??A
5V	uPC78L05	uPC78L05A
6V		
8V	uPC78L08	
9V		
12V	uPC78L12	
15V	uPC78L15	

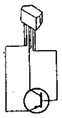

1
IN
OUT
2
GND
3

uPC78M ? ?H (NEC)
POSITIVE VOLTAGE REGULATOR (0.5A)
— SIDE VIEW —

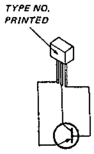


OUTPUT VOLTAGE	uPC78M??H
+5V	uPC78M05H
+6V	---------
+7V	---------
+8V	uPC78M08H
+12V	uPC78M12H
+15V	uPC78M15H
+18V	---------
+20V	---------
+24V	uPC78M24H

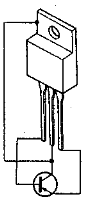

IN
OUT
COM(GND)



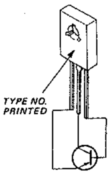
2SA1115


TYPE NO.
PRINTED

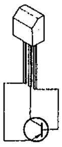
2SA1175
2SA1175F



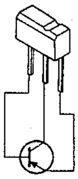
2SA768
2SA771


TYPE NO.
PRINTED

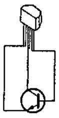
2SB649A



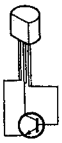
2SB733



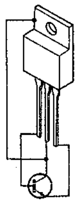
2SB822



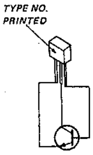
2SC1740S
2SC403SP



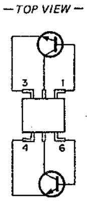
2SC1815
2SC2878



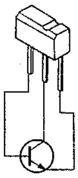
2SC1826


TYPE NO.
PRINTED

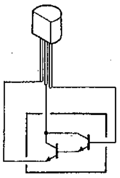
2SC2785
2SC2785F
2SC2785K


– TOP VIEW –
3
1
4
6

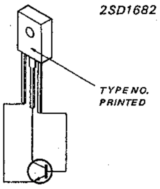
2SC3064



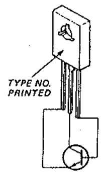
2SD1055



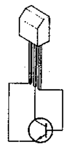
2SD1111


TYPE NO.
PRINTED

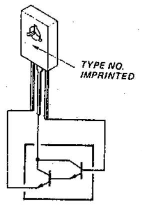
2SD1682


TYPE NO.
PRINTED

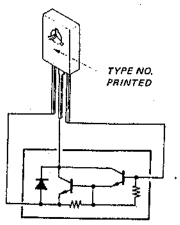
2SD669A



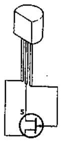
2SD773
2SD774


TYPE NO.
IMPRINTED

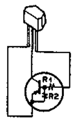
2SD894


TYPE NO.
PRINTED

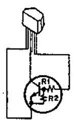
2SD998



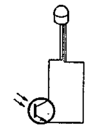
2SK523



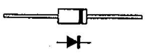
DTA124XS (R1=22K, R2=47K)
DTA143XS (R1=4.7K, R2=10K)
DTA144ES (R1=47K, R2=47K)



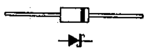
DTC124ES (R1=22K, R2=22K)
DTC124XS (R1=22K, R2=47K)
DTC143TS (R1=4.7K, R2= OPEN)
DTC144ES (R1=47K, R2=47K)



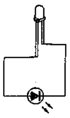
SPS102



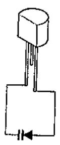
10E-2
1S1555S
1SS119
1SS133



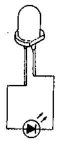
1SS97
1SS97-1
1SS99



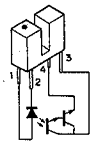
BR5104S ; RED



FC54M

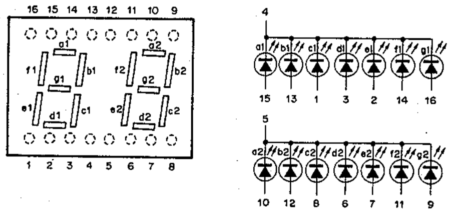


GL-5HD5 ; RED

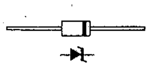


GP-1L52
GP-1L53

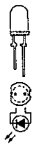
DUAL 7-SEGMENT LED
— TOP VIEW —


16 15 14 13 12 11 10 9
a1
f1
b1
g1
e1
c1
d1
a2
f2
b2
g2
e2
c2
d2
1 2 3 4 5 6 7 8
4
a1 b1 c1 d1 e1 f1 g1
15 13 1 3 2 14 16
5
a2 b2 c2 d2 e2 f2 g2
10 12 8 6 7 11 9

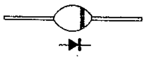
LB402VK (ROHM)



RD ? ?EB ?
RD ? ?ESB ?



TLUG154 ; GREEN



U05E

SECTION 15
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

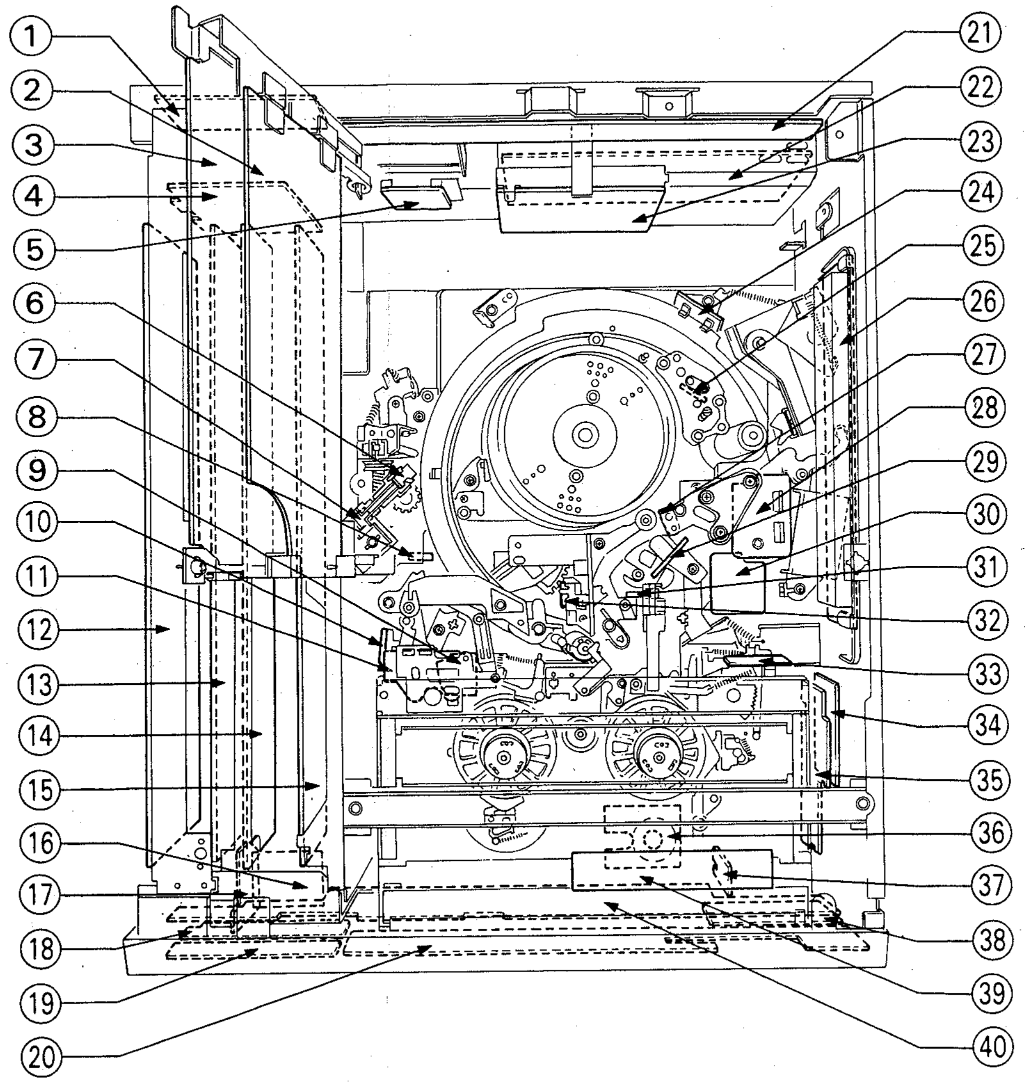
Circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	CP-136	Monitor Out
	DM-69	Y Demodulator, SP Detector, Character Mixer
	DM-70	C PB Processor
	DUS-271	Connector
	MD-59	Y/C Separator, Y Modulator, C REC Processor, Meter Driver
	RP-40	REC/PB Amplifier, Rotary Erase Driver
	VR-80	Level AUTO/MAN
AUDIO	AA-16	Connector
	AU-124	REC/PB Amplifier, Erase/Bias Oscillator
	CP-136	Monitor Out
	DUS-92	Audio R/P Head, Audio Erase Head
	DUS-147	Junction Board for Audio Head
	HN-130	Erase Head
	HP-42	Headphones
	MC-28	MIC IN
	NR-31	Dolby NR, NR Pilot REC/Detector,
	SW-315	Select Switch
	VR-80	REC Level, Limiter ON/OFF
SERVO	EC-32	FR CTL Head
	PT-9	Reel Motor Driver
	SV-112	Drum/Capstan Servo
	SY-141	Reel Servo
	VR-80	Tracking Control
TIME CODE	CP-136	EXT. IN/OUT
	HN-84	Time Code Head
	HN-130	Junction Board for Time Code Head
	NR-31	REC/PB Amplifier
POWER	AC-94	Line Filter
	DC-31D	DC Supply
	UR-01	Switching Regulator

SYSTEM	BOARD	CIRCUIT FUNCTION
SYSTEM CONTROL	KY-159	Function Key Board
	DP-62	Display
	BC-16	Video/Audio Timing Control
	CC-36	Junction Board for CC-37 and LP-41
	CC-37	Cassette In Detector
	LM-13	Threading Motor
	PD-40	Plunger Solenoids
	PD-41	Plunger Solenoids
	PH-5	Tape Beginning/End Detector
	PTC-30	SP/Miss REC Detector
	PTC-32	Search Dial
	PTC-33	Unthread-end Detector
	PTC-34	FR-STOP Detector
	PTC-35	S/T Reel Rotation Detector
	RM-66	Remote Connector
	SE-46	Tension Regulator Detector
	SY-141	System Control
	TG-22	Tension Regulator LED
OTHERS	LP-41	Cassette Compartment Lamp
	MT-53	Meter Lamp
	RM-39	Reel Motor

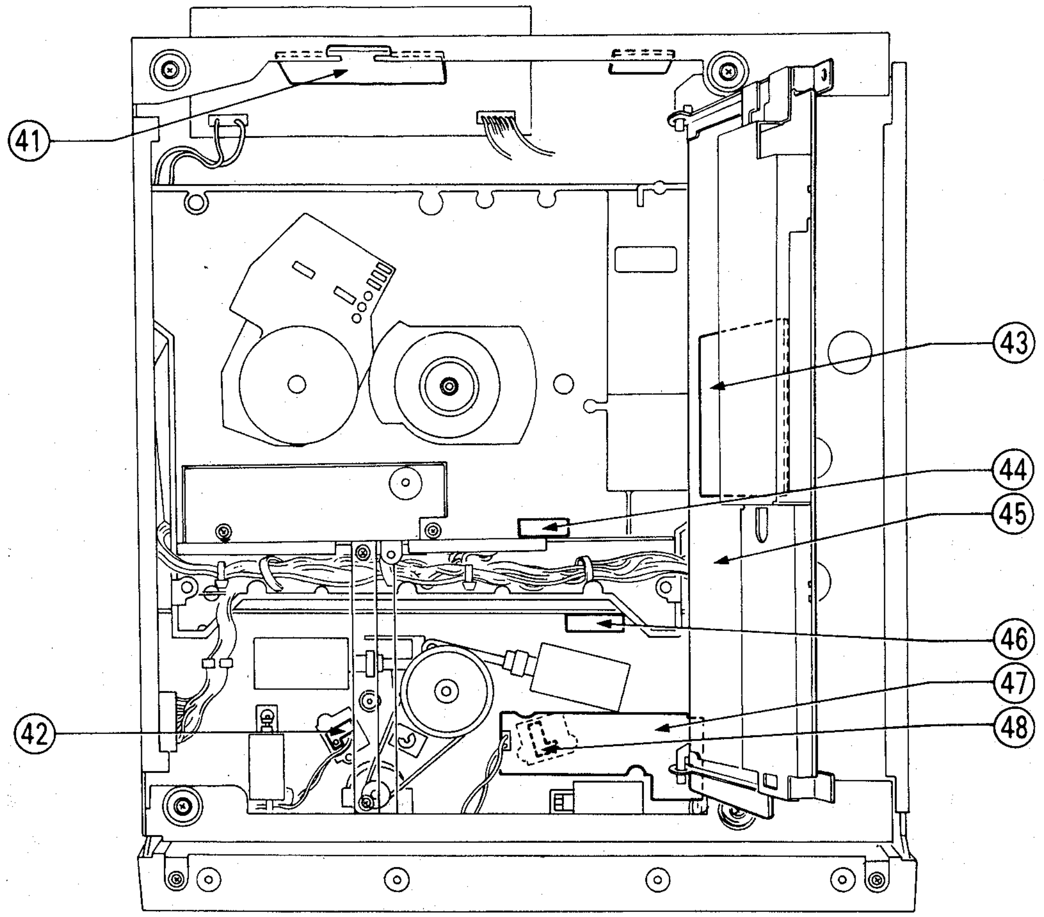
LOCATION

[TOP VIEW]



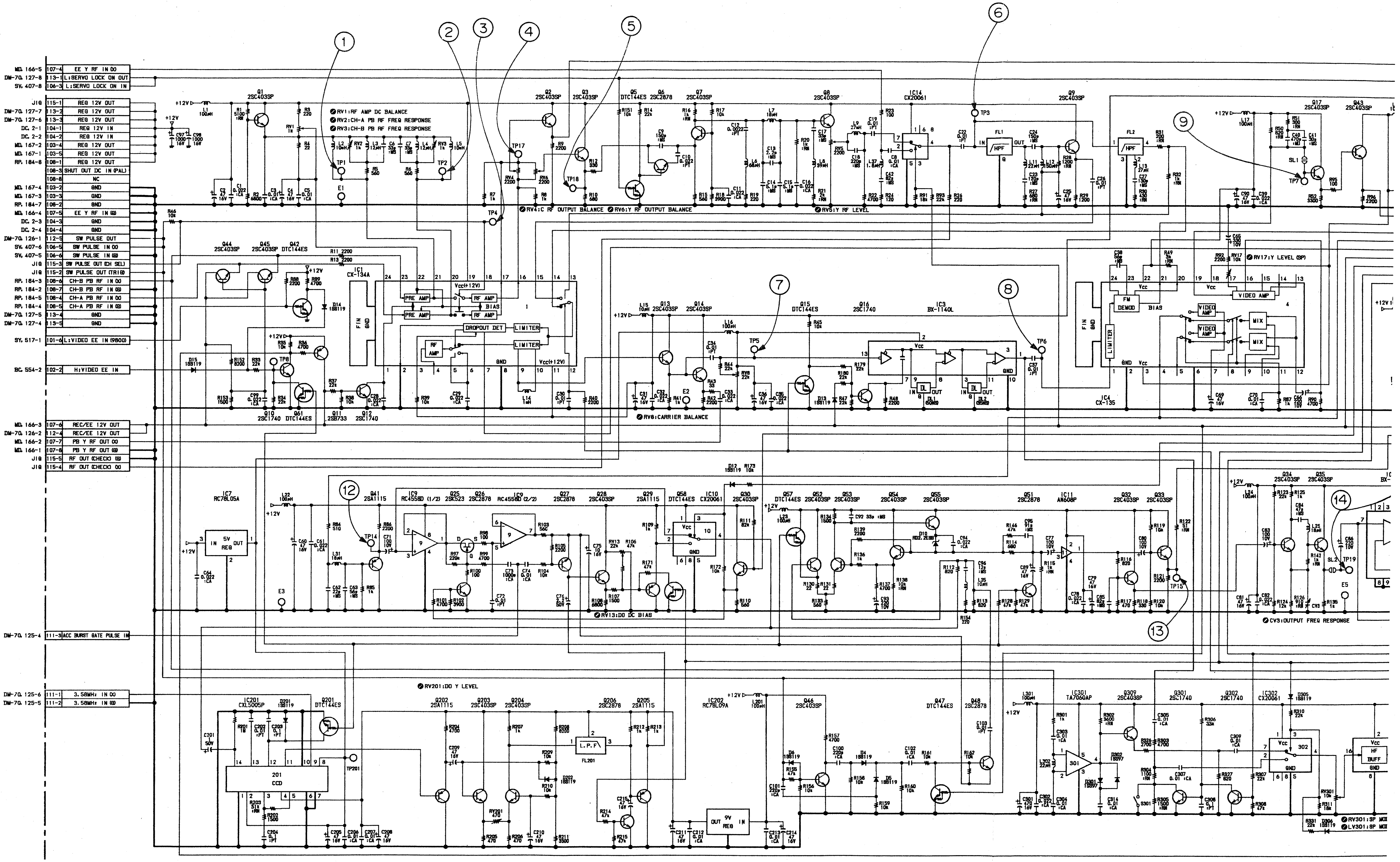
1	CP-136 Board	14	SV-112 Board	27	HN-84 Board
2	DM-70 Board	15	MD-59 Board	28	DUS-147 Board
3	DM-69 Board	16	MC-28 Board	29	EC-32 Board
4	AA-16 Board	17	HP-42 Board	30	HN-130 Board
5	RM-66 Board	18	VR-80 Board	31	PH-5 Board
6	PH-5 Board	19	MT-53 Board	32	PH-5 Board
7	PH-5 Board	20	SW-315 Board	33	CC-37 Board
8	LM-13 Board	21	DUS-271 Board	34	PD-40 Board
9	SE-46 Board	22	Switching Regulator (UR-01)	35	CC-36 Board
10	PTC-34 Board	23	DC-31D Board	36	RM-39 Board
11	PTC-30 Board	24	PTC-33 Board	37	PTC-32 Board
12	AU-124 Board	25	DUS-92 Board	38	DP-62 Board
13	NR-31 Board	26	RP-40 Board	39	LP-41 Board
				40	KY-159 Board

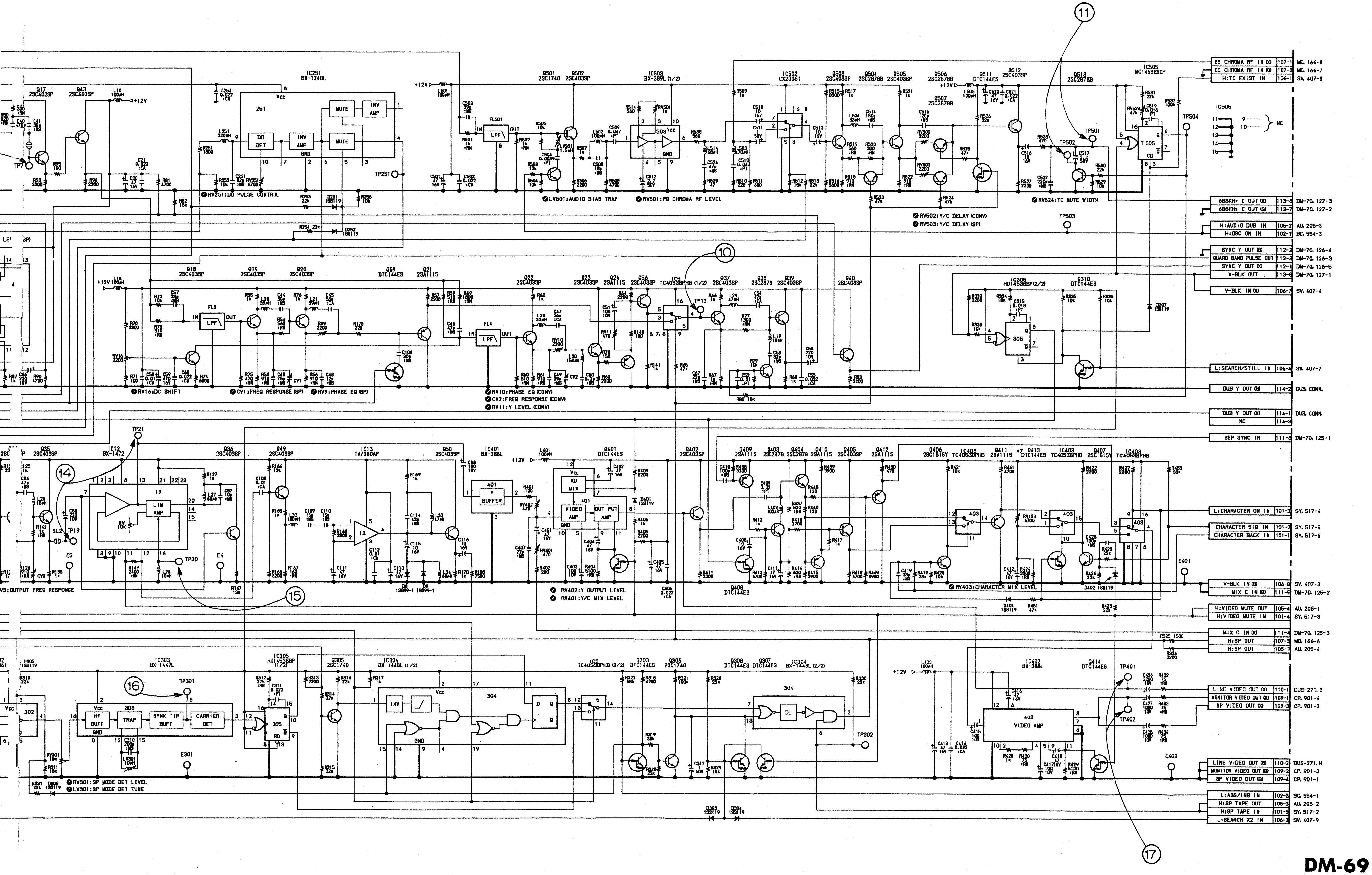
[BOTTOM VIEW]


41
42
43
44
45
46
47
48

41	AC-94 Board
42	PTC-35 Board
43	BC-16 Board
44	PT-9 Board
45	SY-141 Board
46	TG-22 Board
47	PD-41 Board
48	PTC-35 Board

DM-69: Y DEMODULATOR, SP DETECT, CHARACTER MIX


EE Y RF IN (I)
L:SERVO LOCK ON OUT
L:SERVO LOCK ON IN
REG 12V OUT
REG 12V IN
SHUT OUT DC IN (PAL)
NC
GND
EE Y RF IN (I)
SW PULSE OUT
SW PULSE IN (I)
SW PULSE OUT (CH SEL)
SW PULSE OUT (TRIG)
CH-B PB RF IN (I)
CH-A PB RF IN (I)
L:VIDEO EE IN (9800)
H:VIDEO EE IN
REC/EE 12V OUT
PB Y RF OUT
RF OUT (CHECK)
ACC BURST GATE PULSE IN
3.58MHz IN
RV1:RF AMP DC BALANCE
RV2:CH-A PB RF FREQ RESPONSE
RV3:CH-B PB RF FREQ RESPONSE
RV4:C RF OUTPUT BALANCE
RV6:Y RF OUTPUT BALANCE
RV5:Y RF LEVEL
RV8:CARRIER BALANCE
RV13:DO DC BIAS
RV17:Y LEVEL (SP)
RV201:DO Y LEVEL
CV3:OUTPUT FREQ RESPONSE
RV301:SP
LV301:SP
IC1 CX-134A
IC3 BX-1140L
IC4 CX-135
IC7 RC78L05A
IC9 RC4558D
IC10 CX20061
IC11 AN608P
IC14 CX20061
IC201 CXL5005P
IC202 RC78L09A
IC301 TA7060AP
IC302 CX20061
PRE AMP
RF AMP
BIAS
DROPOUT DET
LIMITER
FM DEMOD
VIDEO AMP
MIX
HPF
L.P.F
5V REG
9V REG
CCD
HF BUFF
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP14
TP15
TP17
TP18
TP19
TP201
E1
E2
E3
E5
FL1
FL2
FL201
DL1
DL2
SL1
SL2
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑫
⑬
⑭

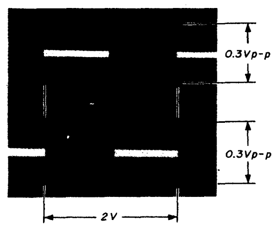

11
10
14
15
16
17
IC251 BX-1248L
IC503 BX-389L (1/2)
IC502 CX20061
IC505 MC14538BCP
Q501 2SC1740
Q502 2SC403SP
Q503 2SC403SP
Q504 2SC2878B
Q505 2SC403SP
Q506 2SC2878B
Q507 2SC2878B
Q511 DTC144ES
Q512 2SC403SP
Q513 2SC2878B
Q17 2SC403SP
Q43 2SC403SP
Q18 2SC403SP
Q19 2SC403SP
Q20 2SC403SP
Q59 DTC144ES
Q21 2SA1115
Q22 2SC403SP
Q23 2SC403SP
Q24 2SA1115
Q56 2SC403SP
IC5 TC4053BPHB (1/2)
Q37 2SC403SP
Q38 2SC2878
Q39 2SC403SP
Q40 2SC403SP
IC305 HD14538BP(2/2)
Q310 DTC144ES
Q35 2SC403SP
IC12 BX-1472
Q36 2SC403SP
Q49 2SC403SP
IC13 TA7060AP
Q50 2SC403SP
IC401 BX-388L
Q401 DTC144ES
Q402 2SC403SP
Q409 2SA1115
Q403 2SC2878
Q404 2SC2878
Q410 2SA1115
Q405 2SC403SP
Q412 2SA1115
Q406 2SC1815Y
IC403 TC4053BPHB
Q411 2SA1115
Q413 DTC144ES
Q407 2SC1815Y
Q408 DTC144ES
IC303 BX-1447L
IC305 HD14538BP (1/2)
Q305 2SC1740
IC304 BX-1448L (1/2)
IC5 TC4053BPHB (2/2)
Q303 DTC144ES
Q306 2SC1740
Q308 DTC144ES
Q307 DTC144ES
IC304 BX-1448L (2/2)
IC402 BX-388L
Q414 DTC144ES
DO DET
INV AMP
MUTE
INV AMP
LPF
LPF
Y BUFFER
VD MIX
VIDEO AMP
OUT PUT AMP
LIM AMP
HF BUFF
TRAP
SYNK TIP BUFF
CARRIER DET
INV
DL
VIDEO AMP
TP7
TP251
TP501
TP502
TP503
TP504
TP13
TP21
TP19
TP20
TP301
TP302
TP401
TP402
E4
E5
E301
E401
E402
RV251:DO PULSE CONTROL
LV501:AUDIO BIAS TRAP
RV501:PB CHROMA RF LEVEL
RV502:Y/C DELAY (CONV)
RV503:Y/C DELAY (SP)
RV524:TC MUTE WIDTH
RV16:DC SHIFT
CV1:FREQ RESPONSE (SP)
RV9:PHASE EQ (SP)
RV10:PHASE EQ (CONV)
CV2:FREQ RESPONSE (CONV)
RV11:Y LEVEL (CONV)
RV3:OUTPUT FREQ RESPONSE
RV402:Y OUTPUT LEVEL
RV401:Y/C MIX LEVEL
RV403:CHARACTER MIX LEVEL
RV301:SP MODE DET LEVEL
LV301:SP MODE DET TUNE
IC505 11 12 13 14 15 9 10 NC
EE CHROMA RF IN (X) 107-1 MD. 166-8
EE CHROMA RF IN (G) 107-2 MD. 166-7
H:TC EXIST IN 106-1 SV. 407-8
688KHz C OUT (X) 113-6 DM-70. 127-3
688KHz C OUT (G) 113-7 DM-70. 127-2
H:AUDIO DUB IN 105-2 AU. 205-3
H:OSC ON IN 102-1 BC. 554-3
SYNC Y OUT (G) 112-2 DM-70. 126-4
GUARD BAND PULSE OUT 112-3 DM-70. 126-3
SYNC Y OUT (X) 112-1 DM-70. 126-5
V-BLK OUT 113-8 DM-70. 127-1
V-BLK IN (X) 106-7 SV. 407-4
L:SEARCH/STILL IN 106-4 SV. 407-7
DUB Y OUT (G) 114-2 DUB. CONN.
DUB Y OUT (X) 114-1 DUB. CONN.
NC 114-3
SEP SYNC IN 111-6 DM-70. 125-1
L:CHARACTER ON IN 101-3 SY. 517-4
CHARACTER SIG IN 101-2 SY. 517-5
CHARACTER BACK IN 101-1 SY. 517-6
V-BLK IN (G) 106-8 SV. 407-3
MIX C IN (G) 111-5 DM-70. 125-2
H:VIDEO MUTE OUT 105-4 AU. 205-1
H:VIDEO MUTE IN 101-4 SY. 517-3
MIX C IN (X) 111-4 DM-70. 125-3
H:SP OUT 107-3 MD. 166-6
H:SP OUT 105-1 AU. 205-4
LINE VIDEO OUT (X) 110-1 DUS-271. G
MONITOR VIDEO OUT (X) 109-1 CP. 901-4
8P VIDEO OUT (X) 109-3 CP. 901-2
LINE VIDEO OUT (G) 110-2 DUS-271. H
MONITOR VIDEO OUT (G) 109-2 CP. 901-3
8P VIDEO OUT (G) 109-4 CP. 901-1
L:ASS/INS IN 102-3 BC. 554-1
H:SP TAPE OUT 105-3 AU. 205-2
H:SP TAPE IN 101-5 SY. 517-2
L:SEARCH X2 IN 106-2 SV. 407-9

DM-69

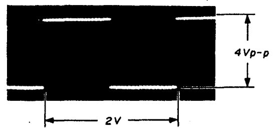
1-629-564-11
VO-9850
VO-9800

① TP1 PB

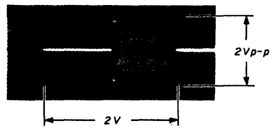
② TP2 PB



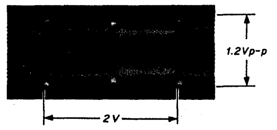
③ TP4 PB



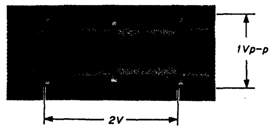
④ TP17 PB



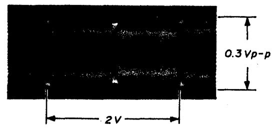
⑤ TP18 PB



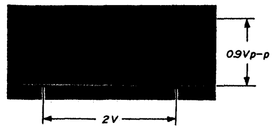
⑥ TP3 PB



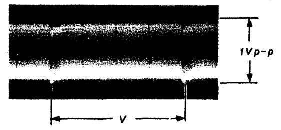
⑦ TP5 PB



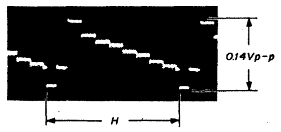
⑧ TP6 PB



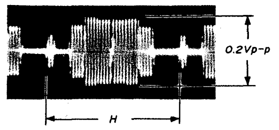
⑨ TP7 PB



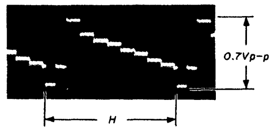
⑩ TP13 PB



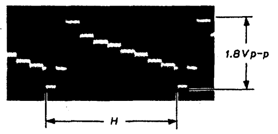
⑪ TP501 TP502 PB



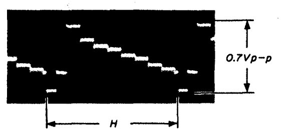
⑫ TP14 PB



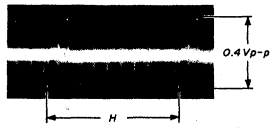
⑬ TP15 PB



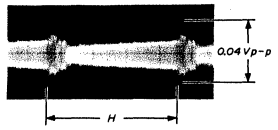
⑭ TP19 TP21 PB



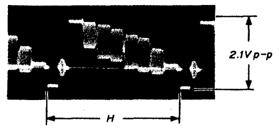
⑮ TP20 PB



⑯ TP301 PB



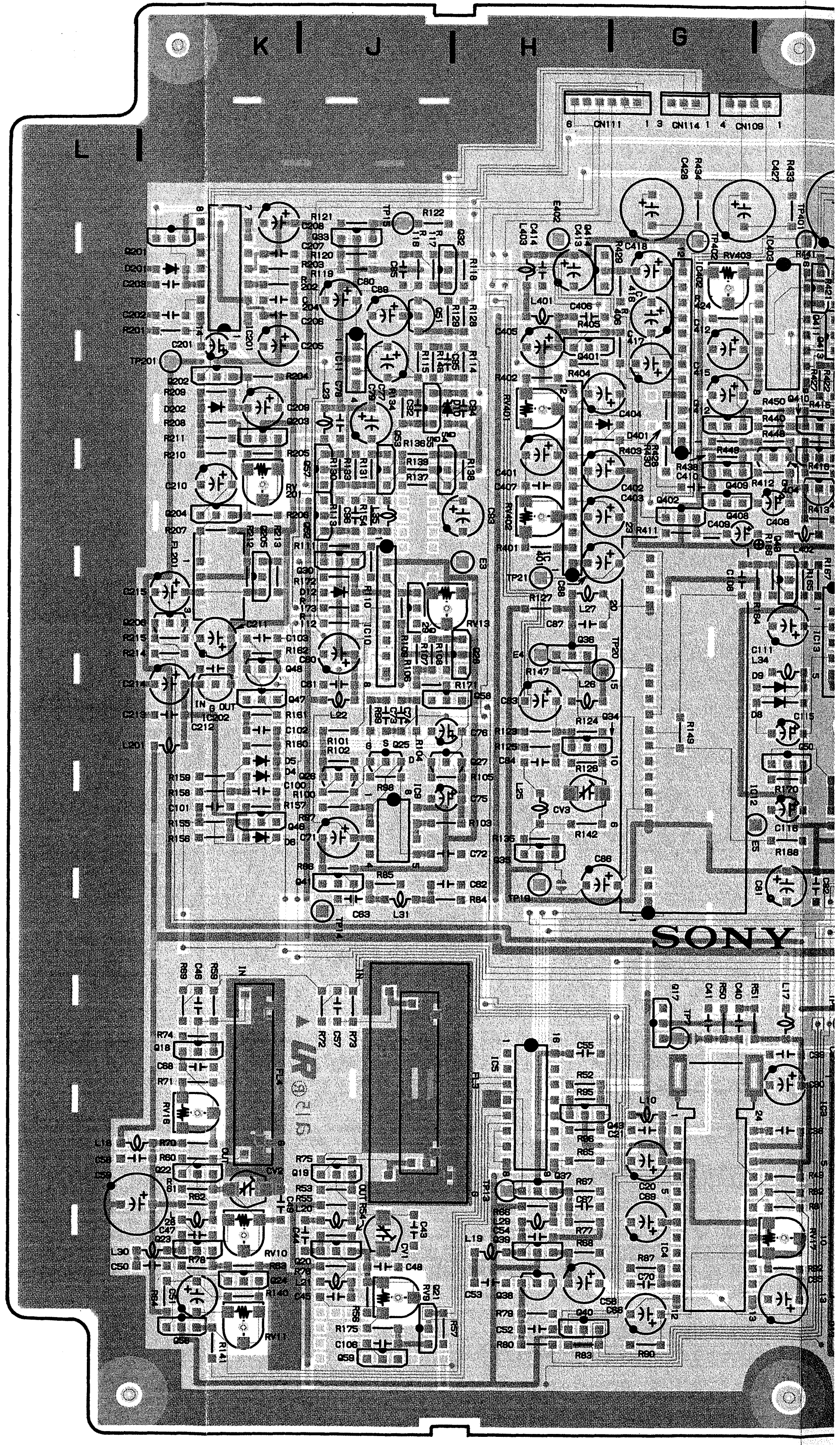
⑰ TP401 TP402 PB



DM-69: Y DEMODULATOR, SP DETECT, CHARACTER MIX

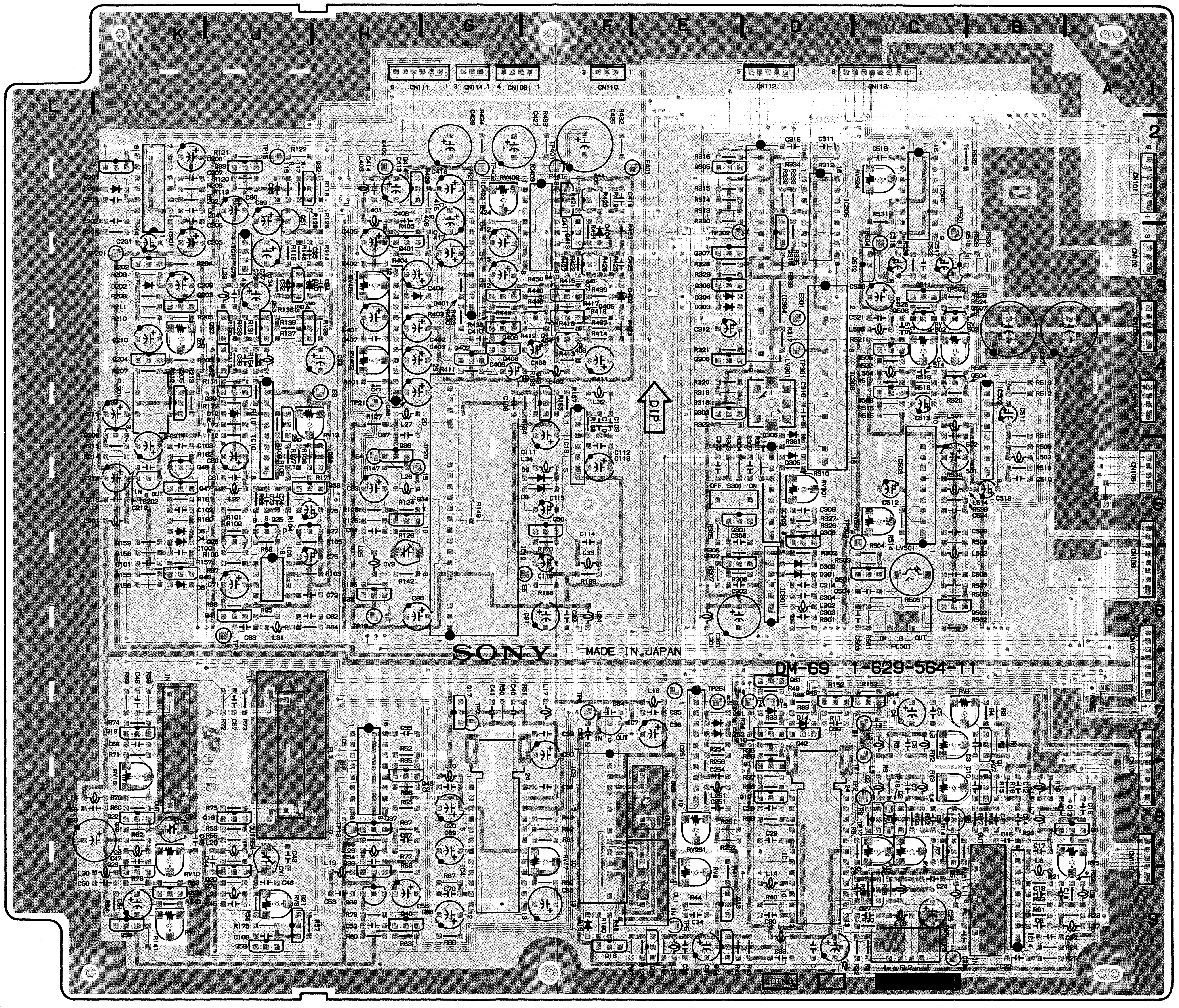
DM-69 (1-629-564-11) C

CN101	A-2
CN102	A-3
CN103	A-3
CN104	A-4
CN105	A-5
CN106	A-6
CN107	A-6
CN108	A-8
CN109	G-1
CN110	F-1
CN111	G-1
CN112	D-1
CN113	C-1
CN114	G-1
CN115	A-8
CV1	J-9
CV2	K-8
CV3	H-6
DL1	E-9
DL2	E-8
D4	K-6
D5	K-5
D6	K-6
D8	F-5
D9	F-5
D10	J-3
D12	J-4
D13	F-9
D14	D-7
D15	D-7
D201	L-2
D202	K-3
D251	D-7
D252	D-7
D301	D-6
D302	D-6
D303	E-3
D304	E-3
D305	D-5
D306	D-5
D401	G-3
D402	F-3
D404	F-3
E1	C-7
E2	E-7
E3	H-4
E4	H-5
E5	F-6
E301	D-3
E401	E-2
E402	H-2
FL1	B-9
FL2	C-9
FL3	J-7
FL4	K-7
FL201	K-4
FL501	C-6
IC1	D-8
IC3	F-8
IC4	G-9
IC5	H-7
IC7	E-7
IC9	J-6
IC10	J-5
IC11	J-3
IC12	F-6
IC13	F-5
IC14	B-9
IC201	K-3
IC202	K-5
IC251	E-7
IC301	D-6
IC302	D-5
IC303	C-4
IC304	D-3
IC305	D-2
IC401	H-4
IC402	G-2
IC403	F-2
IC502	B-4
IC503	C-5
IC505	C-2
LV301	D-4
LV501	C-6
L1	D-9
L2	C-7
L3	C-7
L4	C-8
L5	C-8
L6	B-8
L7	B-8
L8	B-8
L9	A-9
L10	G-8
L11	B-9
L12	C-9
L13	C-9
L14	D-9
L15	E-9
L16	E-7
L17	F-7
L18	L-8
L19	H-8
L20	J-8
L21	J-9
L22	J-5
L23	J-3
L24	F-6
L25	H-6
L26	H-5
L27	H-4
L28	K-8
L29	H-8
L30	L-9
L31	J-6
L32	F-4
L33	F-6
L34	F-5
L35	J-4
L37	A-9
L201	L-5
L251	E-8
L301	E-6
L302	D-6
L401	H-2
L402	F-4
L403	H-2
L501	C-4
L502	B-6
L503	B-5
L504	C-4
L505	C-4
L514	B-5
Q1	B-8
Q2	C-8
Q3	C-8
Q5	C-9
Q6	B-8
Q7	B-8
Q8	A-8
Q9	C-9
Q10	D-7
Q11	D-8
Q12	D-8
Q13	D-9
Q14	E-9
Q15	E-9
Q16	F-9
Q17	G-7
Q18	K-7
Q19	J-8
Q20	J-9
Q21	H-9
Q22	K-8
Q23	K-8
Q24	J-9
Q25	J-5
Q26	J-6
Q27	H-5
Q28	H-5
Q29	J-5
Q30	J-4
Q32	H-2
Q33	J-2
Q34	G-5
Q35	H-6
Q36	H-5
Q37	H-8
Q38	H-9
Q39	H-8
Q40	H-9
Q41	J-6
Q42	D-7
Q43	G-8
Q44	C-7
Q45	D-7
Q46	K-6
Q47	K-7
Q48	K-5
Q49	F-4
Q50	F-5
Q51	J-3
Q52	J-4
Q53	J-3
Q54	J-3
Q55	J-3
Q56	K-9
Q57	J-4
Q58	H-5
Q59	J-9
Q61	D-7
Q201	L-2
Q202	K-3
Q203	J-3
Q204	K-4
Q205	K-4
Q206	L-5
Q301	D-5
Q302	E-6
Q303	E-4
Q305	E-2
Q306	E-4
Q307	E-3
Q308	E-3
Q309	D-5
Q310	D-3
Q401	H-3
Q402	G-4
Q403	F-4
Q404	F-4
Q405	F-3
Q406	F-2
Q407	F-3
Q408	G-4
Q409	G-4
Q410	F-3
Q411	F-3
Q412	G-3
Q413	F-3
Q414	H-2
Q501	D-6
Q502	B-6
Q503	C-4
Q504	B-4
Q505	C-4
Q506	C-3
Q507	B-3
Q511	C-3
Q512	C-3
Q513	B-3
RV1	B-7
RV2	C-7
RV3	C-8
RV4	C-8
RV5	A-8
RV6	C-8
RV8	E-9
RV9	J-9
RV10	K-9
RV11	K-9
RV13	H-5
RV16	K-8
RV17	F-8
RV201	K-4
RV251	E-8
RV301	D-5
RV401	H-3
RV402	H-4
RV403	G-2
RV501	C-5
RV502	C-4
RV503	B-4
RV524	C-2
S301	E-5
TP1	C-8
TP2	C-8
TP3	C-9
TP4	D-7
TP5	E-9
TP6	F-7
TP7	G-7
TP8	D-7
TP13	H-8
TP14	J-7
TP15	J-2
TP17	C-8
TP18	C-8
TP19	H-6
TP20	G-5
TP21	H-4
TP201	L-3
TP251	E-7
TP301	D-4
TP302	E-3
TP401	F-2
TP402	G-2
TP501	C-2
TP502	C-3
TP503	C-5
TP504	C-3



SP DETECT, CHARACTER MIX

L201	L-5	Q53	J-3	RV402	H-4
L251	E-8	Q54	J-3	RV403	G-2
L301	E-6	Q55	J-3	RV501	C-5
L302	D-6	Q56	K-9	RV502	C-4
L401	H-2	Q57	J-4	RV503	B-4
L402	F-4	Q58	H-5	RV524	C-2
L403	H-2	Q59	J-9		
L501	C-4	Q61	D-7	S301	E-5
L502	B-6	Q201	L-2		
L503	B-5	Q202	K-3	TP1	C-8
L504	C-4	Q203	J-3	TP2	C-8
L505	C-4	Q204	K-4	TP3	C-9
L514	B-5	Q205	K-4	TP4	D-7
		Q206	L-5	TP5	E-9
Q1	B-8	Q301	D-5	TP6	F-7
Q2	C-8	Q302	E-6	TP7	G-7
Q3	C-8	Q303	E-4	TP8	D-7
Q5	C-9	Q305	E-2	TP13	H-8
Q6	B-8	Q306	E-4	TP14	J-7
Q7	B-8	Q307	E-3	TP15	J-2
Q8	A-8	Q308	E-3	TP17	C-8
Q9	C-9	Q309	D-5	TP18	C-8
Q10	D-7	Q310	D-3	TP19	H-6
Q11	D-8	Q401	H-3	TP20	G-5
Q12	D-8	Q402	G-4	TP21	H-4
Q13	D-9	Q403	F-4	TP201	L-3
Q14	E-9	Q404	F-4	TP251	E-7
Q15	E-9	Q405	F-3	TP301	D-4
Q16	F-9	Q406	F-2	TP302	E-3
Q17	G-7	Q407	F-3	TP401	F-2
Q18	K-7	Q408	G-4	TP402	G-2
Q19	J-8	Q409	G-4	TP501	C-2
Q20	J-9	Q410	F-3	TP502	C-3
Q21	H-9	Q411	F-3	TP503	C-5
Q22	K-8	Q412	G-3	TP504	C-3
Q23	K-8	Q413	F-3		
Q24	J-9	Q414	H-2		
Q25	J-5	Q501	D-6		
Q26	J-6	Q502	B-6		
Q27	H-5	Q503	C-4		
Q28	H-5	Q504	B-4		
Q29	J-5	Q505	C-4		
Q30	J-4	Q506	C-3		
Q32	H-2	Q507	B-3		
Q33	J-2	Q511	C-3		
Q34	G-5	Q512	C-3		
Q35	H-6	Q513	B-3		
Q36	H-5	RV1	B-7		
Q37	H-8	RV2	C-7		
Q38	H-9	RV3	C-8		
Q39	H-8	RV4	C-8		
Q40	H-9	RV5	A-8		
Q41	J-6	RV6	C-8		
Q42	D-7	RV8	E-9		
Q43	G-8	RV9	J-9		
Q44	C-7	RV10	K-9		
Q45	D-7	RV11	K-9		
Q46	K-6	RV13	H-5		
Q47	K-7	RV16	K-8		
Q48	K-5	RV17	F-8		
Q49	F-4	RV201	K-4		
Q50	F-5	RV251	E-8		
Q51	J-3	RV301	D-5		
Q52	J-4	RV401	H-3		

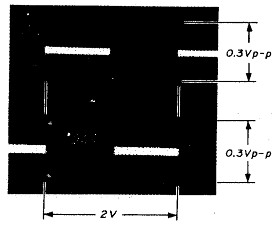


DM-69

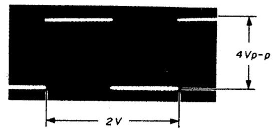
—COMPONENT SIDE—
1-629-564-11
VO-9850
VO-9800

① TP1
PB

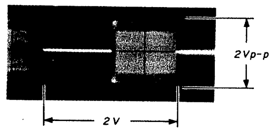
② TP2
PB



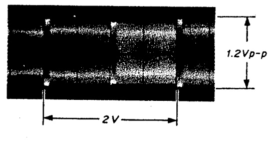
③ TP4
PB



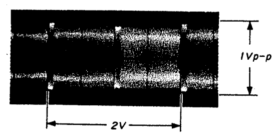
④ TP17
PB



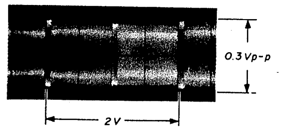
⑤ TP18
PB



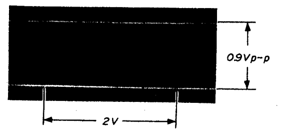
⑥ TP3
PB



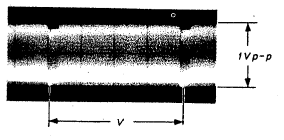
⑦ TP5
PB



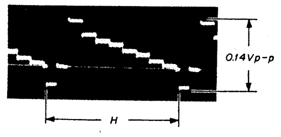
⑧ TP6
PB



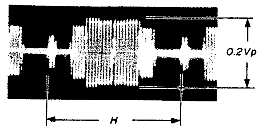
⑨ TP7
PB



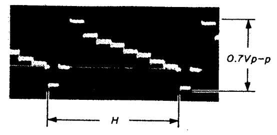
⑩ TP13
PB



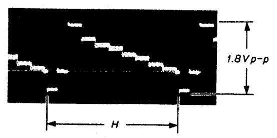
⑪ TP501
TP502
PB



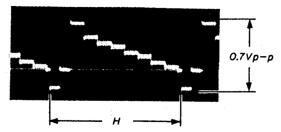
⑫ TP14
PB



⑬ TP15
PB



⑭ TP19
TP21
PB



⑮ TP20
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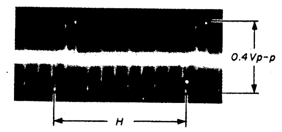
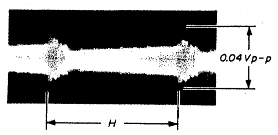
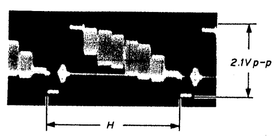


⑯ TP301
PB



⑰ TP401
TP402
PB



DM-69: Y DEMODULATOR, SP DETECT, CHARACTER MIX

DM-69 (1-629-564-11) S

CN101	A-2
CN102	A-3
CN103	A-3
CN104	A-4
CN105	A-5
CN106	A-6
CN107	A-6
CN108	A-8
CN109	G-1
CN110	F-1
CN111	G-1
CN112	D-1
CN113	C-1
CN114	G-1
CN115	A-8
CV1	J-9
CV2	K-8
CV3	H-6
DL1	E-9
DL2	E-8
D4	K-6
D5	K-5
D6	K-6
D8	F-5
D9	F-5
D10	J-3
D12	J-4
D13	F-9
D14	D-7
D15	D-7
D201	L-2
D202	K-3
D251	D-7
D252	D-7
D301	D-6
D302	D-6
D303	E-3
D304	E-3
D305	D-5
D306	D-5
D401	G-3
D402	F-3
D404	F-3
E1	C-7
E2	E-7
E3	H-4
E4	H-5
E5	F-6
E301	D-3
E401	E-2
E402	H-2
FL1	B-9
FL2	C-9
FL3	J-7
FL4	K-7
FL201	K-4
FL501	C-6
IC1	D-8
IC3	F-8
IC4	G-9
IC5	H-7
IC7	E-7
IC9	J-6
IC10	J-5
IC11	J-3
IC12	F-6
IC13	F-5
IC14	B-9
IC201	K-3
IC202	K-5
IC251	E-7
IC301	D-6
IC302	D-5
IC303	C-4
IC304	D-3
IC305	D-2
IC401	H-4
IC402	G-2
IC403	F-2
IC502	B-4
IC503	C-5
IC505	C-2
LV301	D-4
LV501	C-6
L1	D-9
L2	C-7
L3	C-7
L4	C-8
L5	C-8
L6	B-8
L7	B-8
L8	B-8
L9	A-9
L10	G-8
L11	B-9
L12	C-9
L13	C-9
L14	D-9
L15	E-9
L16	E-7
L17	F-7
L18	L-8
L19	H-8
L20	J-8
L21	J-9
L22	J-5
L23	J-3
L24	F-6
L25	H-6
L26	H-5
L27	H-4
L28	K-8
L29	H-8
L30	L-9
L31	J-6
L32	F-4
L33	F-6
L34	F-5
L35	J-4
L37	A-9
L201	L-5
L251	E-8
L301	E-6
L302	D-6
L401	H-2
L402	F-4
L403	H-2
L501	C-4
L502	B-6
L503	B-5
L504	C-4
L505	C-4
L514	B-5
Q1	B-8
Q2	C-8
Q3	C-8
Q5	C-9
Q6	B-8
Q7	B-8
Q8	A-8
Q9	C-9
Q10	D-7
Q11	D-8
Q12	D-8
Q13	D-9
Q14	E-9
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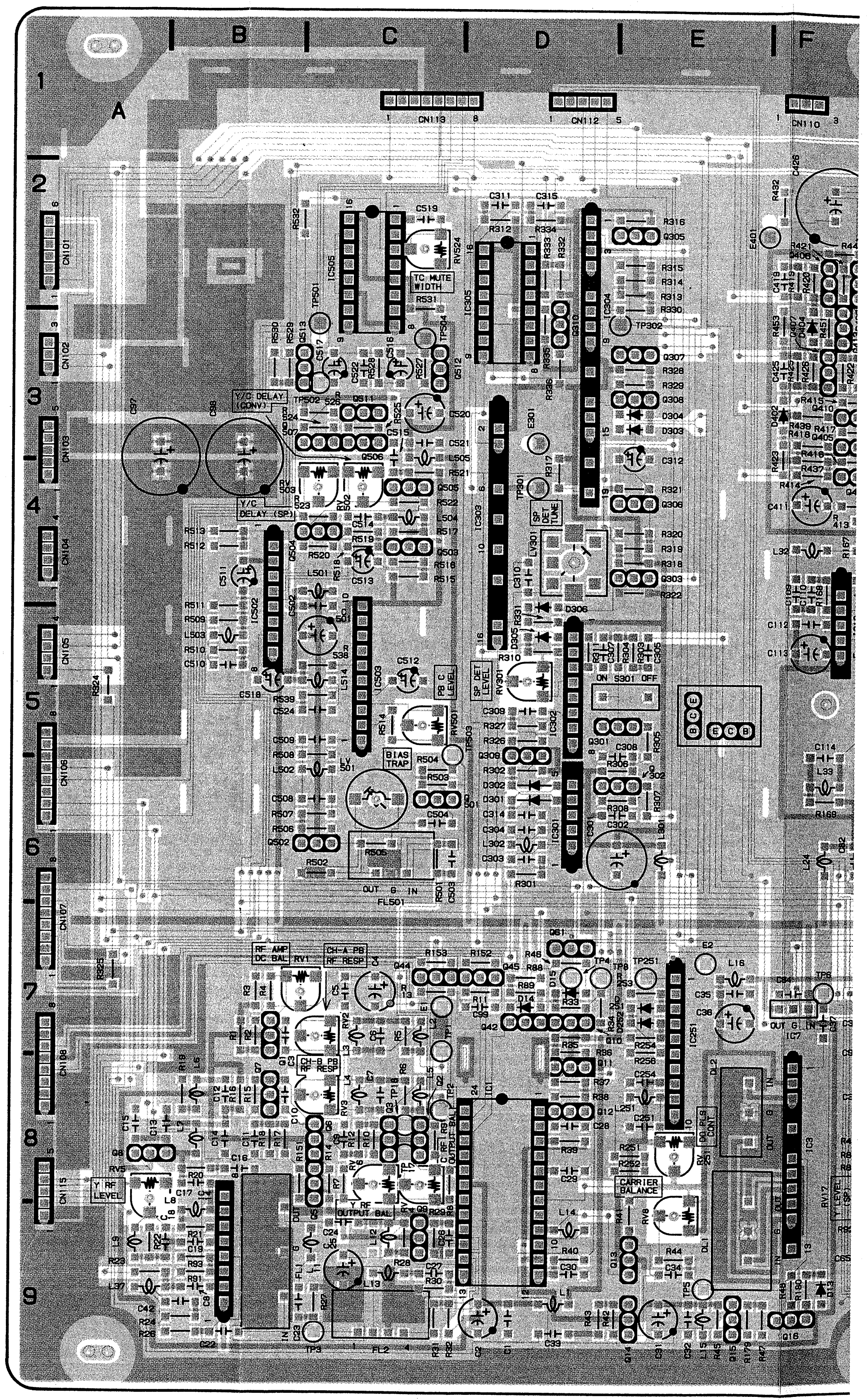
Q18	K-7
Q19	J-8
Q20	J-9
Q21	H-9
Q22	K-8
Q23	K-8
Q24	J-9
Q25	J-5
Q26	J-6
Q27	H-5
Q28	H-5
Q29	J-5
Q30	J-4
Q32	H-2
Q33	J-2
Q34	G-5
Q35	H-6
Q36	H-5
Q37	H-8
Q38	H-9
Q39	H-8
Q40	H-9
Q41	J-6
Q42	D-7
Q43	G-8
Q44	C-7
Q45	D-7
Q46	K-6
Q47	K-7
Q48	K-5
Q49	F-4
Q50	F-5
Q51	J-3
Q52	J-4
Q53	J-3
Q54	J-3
Q55	J-3
Q56	K-9
Q57	J-4
Q58	H-5
Q59	J-9
Q61	D-7
Q201	L-2
Q202	K-3
Q203	J-3
Q204	K-4
Q205	K-4
Q206	L-5
Q301	D-5
Q302	E-6
Q303	E-4
Q305	E-2
Q306	E-4
Q307	E-3
Q308	E-3
Q309	D-5
Q310	D-3
Q401	H-3
Q402	G-4
Q403	F-4
Q404	F-4
Q405	F-3
Q406	F-2
Q407	F-3
Q408	G-4
Q409	G-4
Q410	F-3
Q411	F-3
Q412	G-3
Q413	F-3
Q414	H-2
Q501	D-6
Q502	B-6
Q503	C-4
Q504	B-4
Q505	C-4
Q506	C-3
Q507	B-3
Q511	C-3
Q512	C-3
Q513	B-3
RV1	B-7
RV2	C-7
RV3	C-8
RV4	C-8
RV5	A-8
RV6	C-8
RV8	E-9
RV9	J-9
RV10	K-9
RV11	K-9
RV13	H-5
RV16	K-8
RV17	F-8
RV201	K-4
RV251	E-8
RV301	D-5
RV401	H-3
RV402	H-4
RV403	G-2
RV501	C-5
RV502	C-4
RV503	B-4
RV524	C-2
S301	E-5
TP1	C-8
TP2	C-8
TP3	C-9
TP4	D-7
TP5	E-9
TP6	F-7
TP7	G-7
TP8	D-7
TP13	H-8
TP14	J-7
TP15	J-2
TP17	C-8
TP18	C-8
TP19	H-6
TP20	G-5
TP21	H-4
TP201	L-3
TP251	E-7
TP301	D-4
TP302	E-3
TP401	F-2
TP402	G-2
TP501	C-2
TP502	C-3
TP503	C-5
TP504	C-3


A
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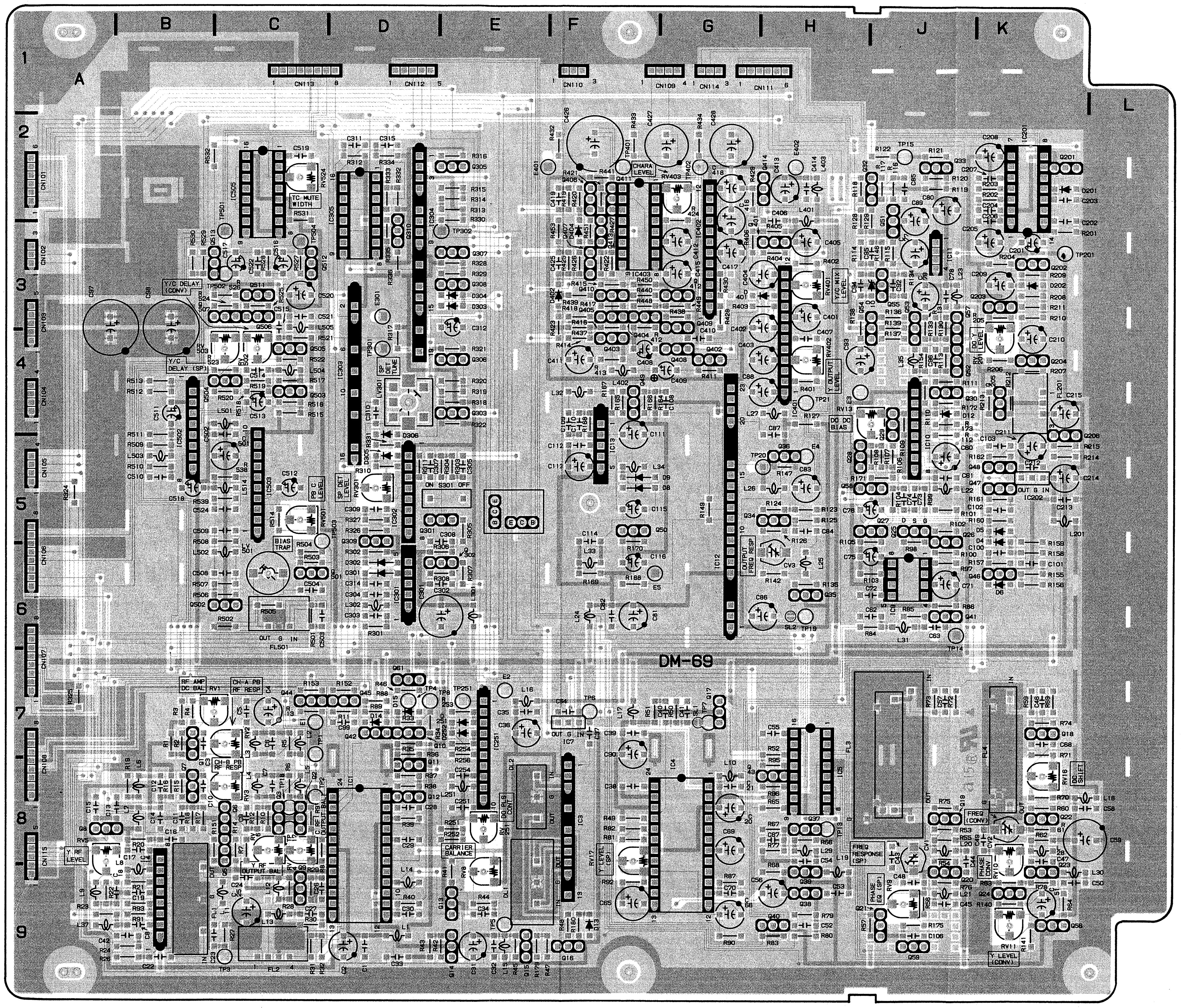
CN101
CN102
CN103
CN104
CN105
CN106
CN107
CN108
CN115
CN113
CN112
CN110
TC MUTE WIDTH
Y/C DELAY (CONV)
Y/C DELAY (SP)
SP DET TUNE
SP DET LEVEL
PB C LEVEL
BIAS TRAP
OUT G IN
FL501
RF AMP DC BAL
CH-A PB RF RESP
CH-B PB RESP
Y RF LEVEL
Y RF OUTPUT BAL
CARRIER BALANCE
ON S301 OFF
FL2
TP3
TP251

UL TOR, SP DETECT, CHARACTER MIX

S

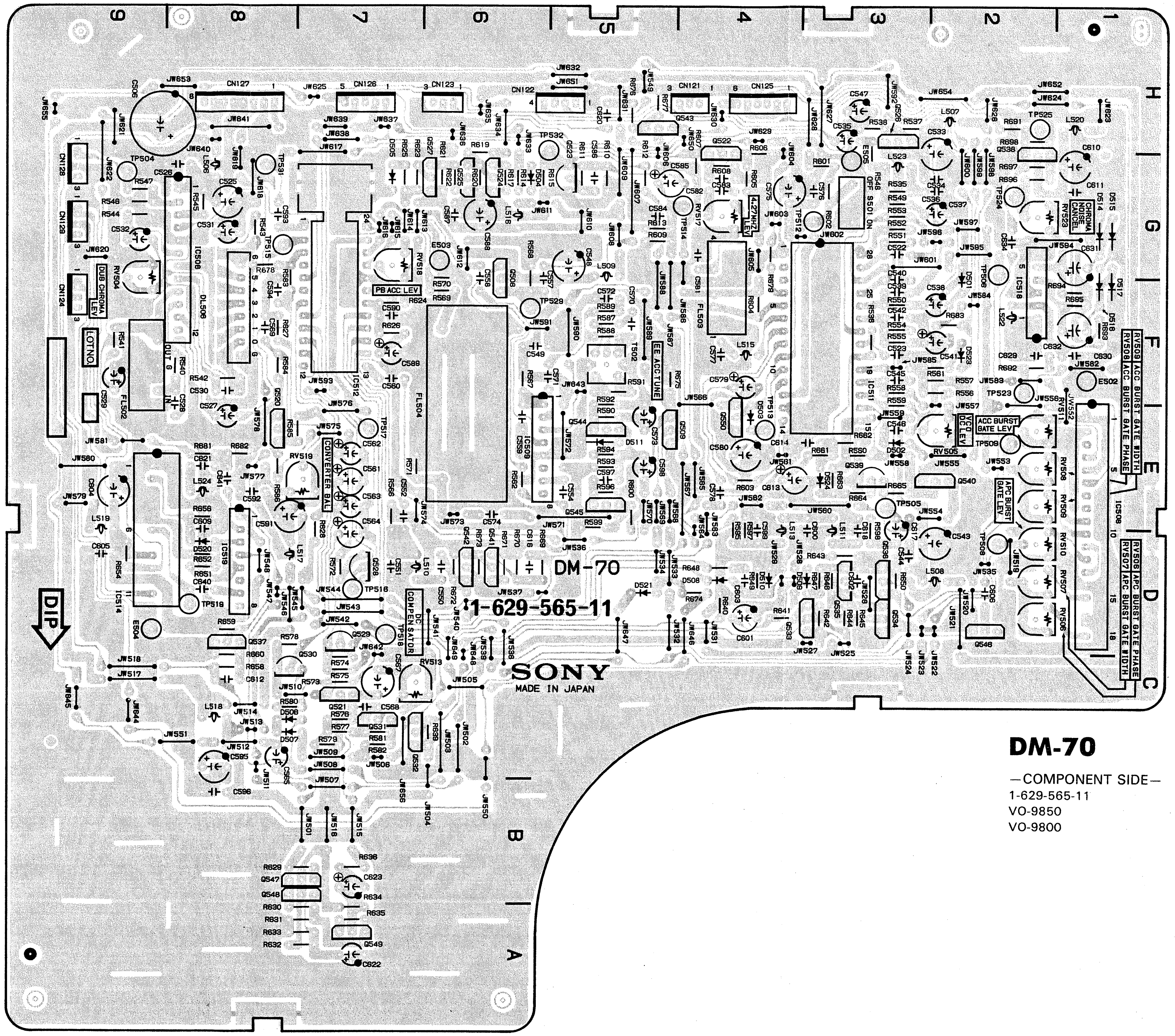
-8	L201	L-5	Q53	J-3	RV402	H-4
G-9	L251	E-8	Q54	J-3	RV403	G-2
H-7	L301	E-6	Q55	J-3	RV501	C-5
-7	L302	D-6	Q56	K-9	RV502	C-4
-6	L401	H-2	Q57	J-4	RV503	B-4
J-5	L402	F-4	Q58	H-5	RV524	C-2
J-3	L403	H-2	Q59	J-9		
-6	L501	C-4	Q61	D-7	S301	E-5
-5	L502	B-6	Q201	L-2		
B-9	L503	B-5	Q202	K-3	TP1	C-8
K-3	L504	C-4	Q203	J-3	TP2	C-8
-5	L505	C-4	Q204	K-4	TP3	C-9
-7	L514	B-5	Q205	K-4	TP4	D-7
D-6			Q206	L-5	TP5	E-9
D-5	Q1	B-8	Q301	D-5	TP6	F-7
-4	Q2	C-8	Q302	E-6	TP7	G-7
-3	Q3	C-8	Q303	E-4	TP8	D-7
-2	Q5	C-9	Q305	E-2	TP13	H-8
H-4	Q6	B-8	Q306	E-4	TP14	J-7
-2	Q7	B-8	Q307	E-3	TP15	J-2
-2	Q8	A-8	Q308	E-3	TP17	C-8
-4	Q9	C-9	Q309	D-5	TP18	C-8
C-5	Q10	D-7	Q310	D-3	TP19	H-6
-2	Q11	D-8	Q401	H-3	TP20	G-5
	Q12	D-8	Q402	G-4	TP21	H-4
-4	Q13	D-9	Q403	F-4	TP201	L-3
C-6	Q14	E-9	Q404	F-4	TP251	E-7
	Q15	E-9	Q405	F-3	TP301	D-4
-9	Q16	F-9	Q406	F-2	TP302	E-3
-7	Q17	G-7	Q407	F-3	TP401	F-2
C-7	Q18	K-7	Q408	G-4	TP402	G-2
C-8	Q19	J-8	Q409	G-4	TP501	C-2
-8	Q20	J-9	Q410	F-3	TP502	C-3
-8	Q21	H-9	Q411	F-3	TP503	C-5
B-8	Q22	K-8	Q412	G-3	TP504	C-3
B-8	Q23	K-8	Q413	F-3		
-9	Q24	J-9	Q414	H-2		
-8	Q25	J-5	Q501	D-6		
B-9	Q26	J-6	Q502	B-6		
C-9	Q27	H-5	Q503	C-4		
-9	Q28	H-5	Q504	B-4		
-9	Q29	J-5	Q505	C-4		
E-9	Q30	J-4	Q506	C-3		
E-7	Q32	H-2	Q507	B-3		
-7	Q33	J-2	Q511	C-3		
-8	Q34	G-5	Q512	C-3		
H-8	Q35	H-6	Q513	B-3		
J-8	Q36	H-5	RV1	B-7		
-9	Q37	H-8	RV2	C-7		
-5	Q38	H-9	RV3	C-8		
J-3	Q39	H-8	RV4	C-8		
F-6	Q40	H-9	RV5	A-8		
-6	Q41	J-6	RV6	C-8		
-5	Q42	D-7	RV8	E-9		
H-4	Q43	G-8	RV9	J-9		
K-8	Q44	C-7	RV10	K-9		
-8	Q45	D-7	RV11	K-9		
-9	Q46	K-6	RV13	H-5		
J-6	Q47	K-7	RV16	K-8		
F-4	Q48	K-5	RV17	F-8		
-6	Q49	F-4	RV201	K-4		
-5	Q50	F-5	RV251	E-8		
J-4	Q51	J-3	RV301	D-5		
A-9	Q52	J-4	RV401	H-3		



DM-69

—SOLDERING SIDE—
1-629-564-11
VO-9850
VO-9800

DM-70: C PB PROCESSOR


9
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1
H
G
F
E
D
C
B
A
DUB CHROMA LEV
LOTNO
PB ACC LEV
EE ACC TUNE
CONVERTER BAL
DC COMPENSATOR
CHROMA NOISE CANCEL
ACC BURST GATE LEV
APC BURST GATE LEV
VCO DC LEV
RV509 ACC BURST GATE WIDTH
RV508 ACC BURST GATE PHASE
RV506 APC BURST GATE PHASE
RV507 APC BURST GATE WIDTH
DIP
DM-70
1-629-565-11
SONY
MADE IN JAPAN

DM-70

—COMPONENT SIDE—
1-629-565-11
VO-9850
VO-9800

DM-70 (1-

CN121
CN122
CN123
CN124
CN125
CN126
CN127
CN128
CN129

DL506

D501
D502
D503
D504
D505
D506
D507
D508
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D511
D514
D515
D516
D517
D520
D521
D523
D524

E502
E503
E504
E505

FL502
FL503
FL504

IC506
IC508
IC509
IC511
IC512
IC514
IC518
IC519
L506
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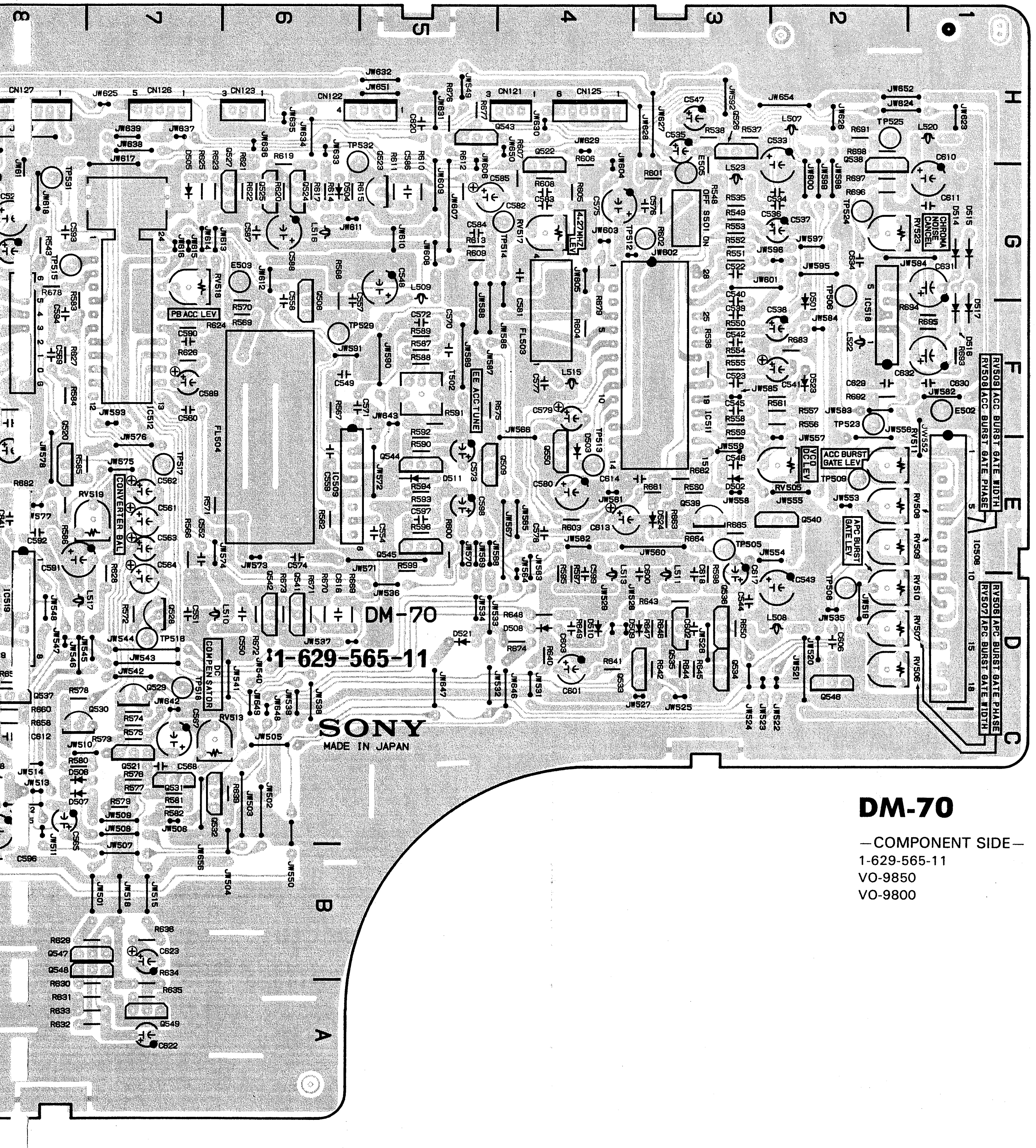
L522
L523


DM-70
1-629-565-11
SONY
MADE IN JAPAN
PB ACC LEV
CONVERTER BAL
DC COMPENSATION
CHROMA NOISE CANCEL
4.27MHz LEV
EE ACC TUNE
OFF S501 ON
ACC BURST GATE LEV
APC BURST GATE LEV
DC LEV
RV508 ACC BURST GATE WIDTH
RV506 ACC BURST GATE PHASE
RV510 APC BURST GATE PHASE
RV507 APC BURST GATE WIDTH
H
G
F
E
D
C
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DM-70

—COMPONENT SIDE—
1-629-565-11
VO-9850
VO-9800

DM-70 (1-629-565-11) C

CN121	H-4
CN122	H-5
CN123	H-6
CN124	F-9
CN125	H-4
CN126	H-7
CN127	H-8
CN128	G-9
CN129	G-9
DL506	F-8
D501	F-2
D502	E-3
D503	E-4
D504	G-6
D505	G-7
D506	C-8
D507	C-8
D508	D-4
D509	D-3
D510	D-4
D511	E-5
D514	G-1
D515	G-1
D516	F-1
D517	F-1
D520	D-8
D521	D-5
D523	F-2
D524	E-3
E502	F-1
E503	G-6
E504	D-9
E505	G-3
FL502	E-9
FL503	F-4
FL504	E-7
IC506	G-8
IC508	E-1
IC509	E-6
IC511	F-3
IC512	F-7
IC514	D-9
IC518	F-2
IC519	D-8
L506	G-8
L507	H-2
L508	D-2
L509	G-5
L510	D-7
L511	D-3
L513	D-4
L515	F-4
L516	G-6
L517	D-7
L518	C-8
L519	E-9
L520	H-1
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L523	G-3
L524	E-8
Q508	F-6
Q509	E-4
Q520	F-8
Q521	C-7
Q522	H-4
Q523	H-5
Q524	G-6
Q525	H-6
Q526	H-3
Q527	H-6
Q528	D-7
Q529	D-7
Q530	C-7
Q531	C-7
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Q537	D-8
Q538	H-2
Q539	E-3
Q540	E-2
Q541	D-6
Q542	D-6
Q543	H-4
Q544	E-5
Q545	E-5
Q546	D-2
Q547	B-8
Q548	B-8
Q549	A-7
Q550	E-4
RV504	F-9
RV505	E-2
RV506	D-2
RV507	D-2
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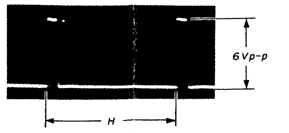
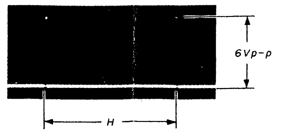
RV510	D-1
RV511	E-1
RV513	C-6
RV517	G-4
RV518	G-7
RV519	E-7
RV523	G-1
S501	G-3
TP504	G-9
TP505	E-3
TP506	G-2
TP508	D-2
TP509	E-2
TP512	G-4
TP513	E-4
TP514	G-4
TP515	G-8
TP516	D-7
TP517	E-7
TP518	D-7
TP519	D-8
TP523	F-2
TP524	G-2
TP525	H-2
TP529	F-5
TP531	G-8
TP532	H-5
T502	F-5

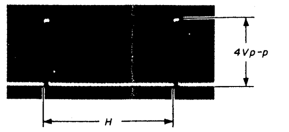
① TP505 PB



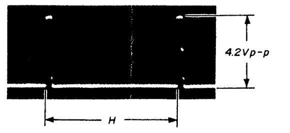
② TP506 PB



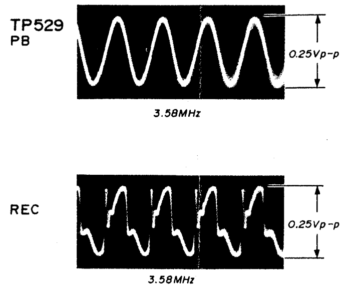
③ TP508 PB



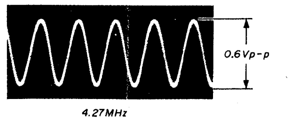
④ TP509 PB



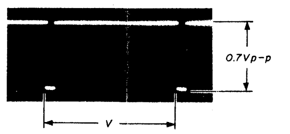
⑤ TP529 PB



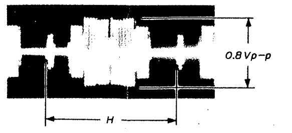
⑥ TP531 REC



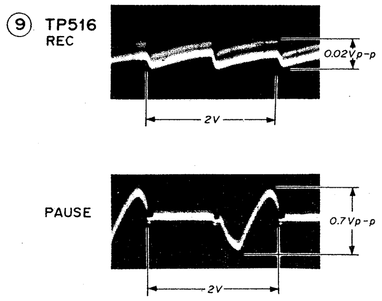
⑦ TP532 PB



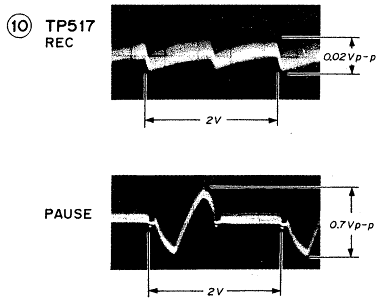
⑧ TP515 PB



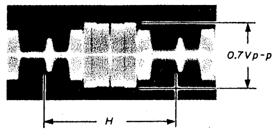
⑨ TP516 REC



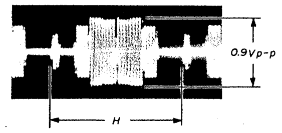
⑩ TP517 REC



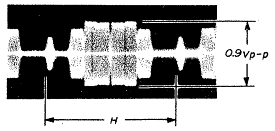
⑪ TP518 PB



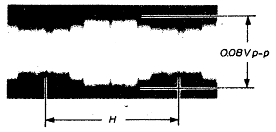
⑫ TP504 REC



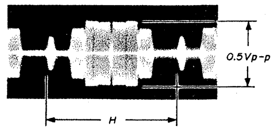
⑬ TP523 PB



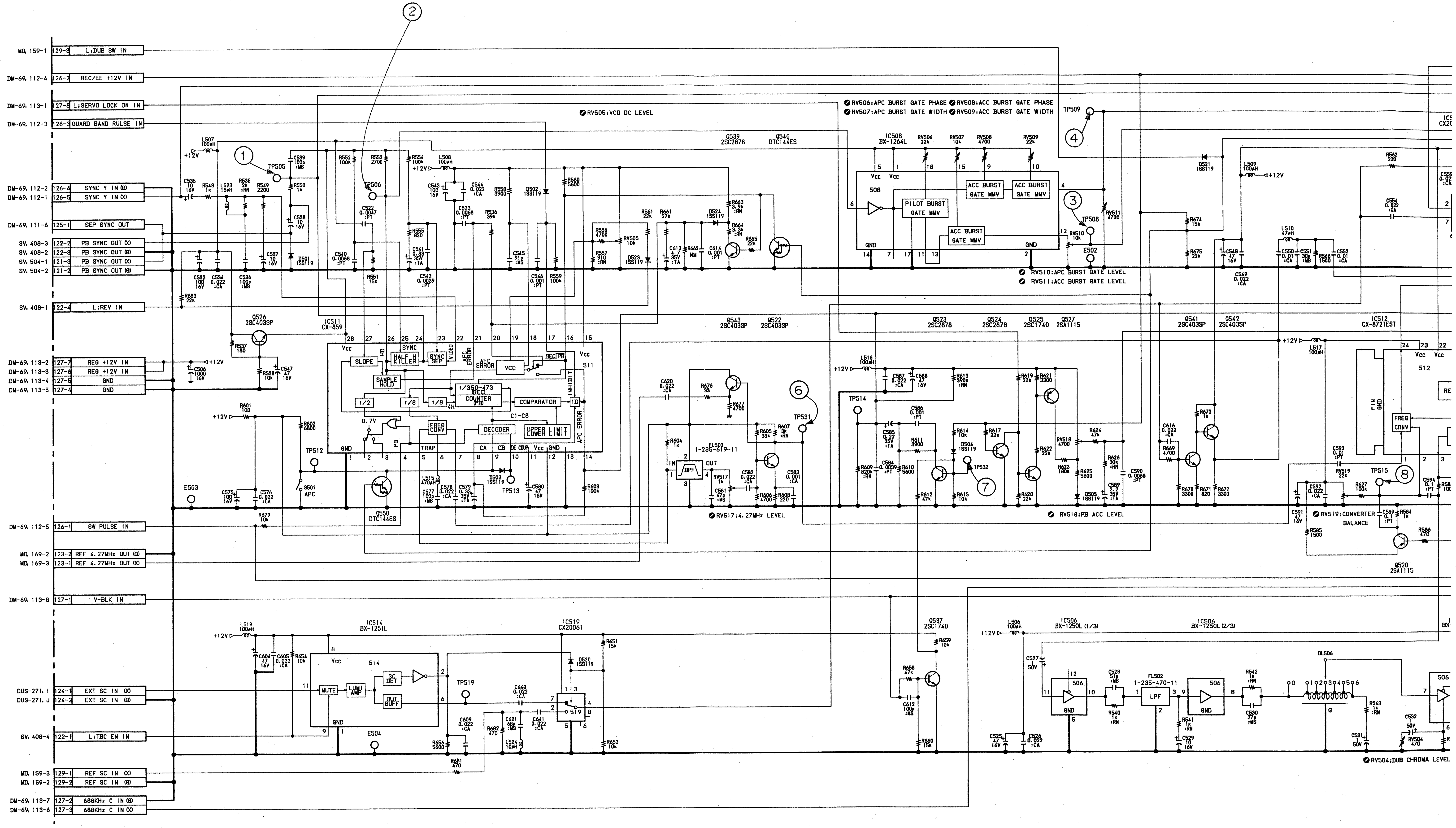
⑭ TP524 PB

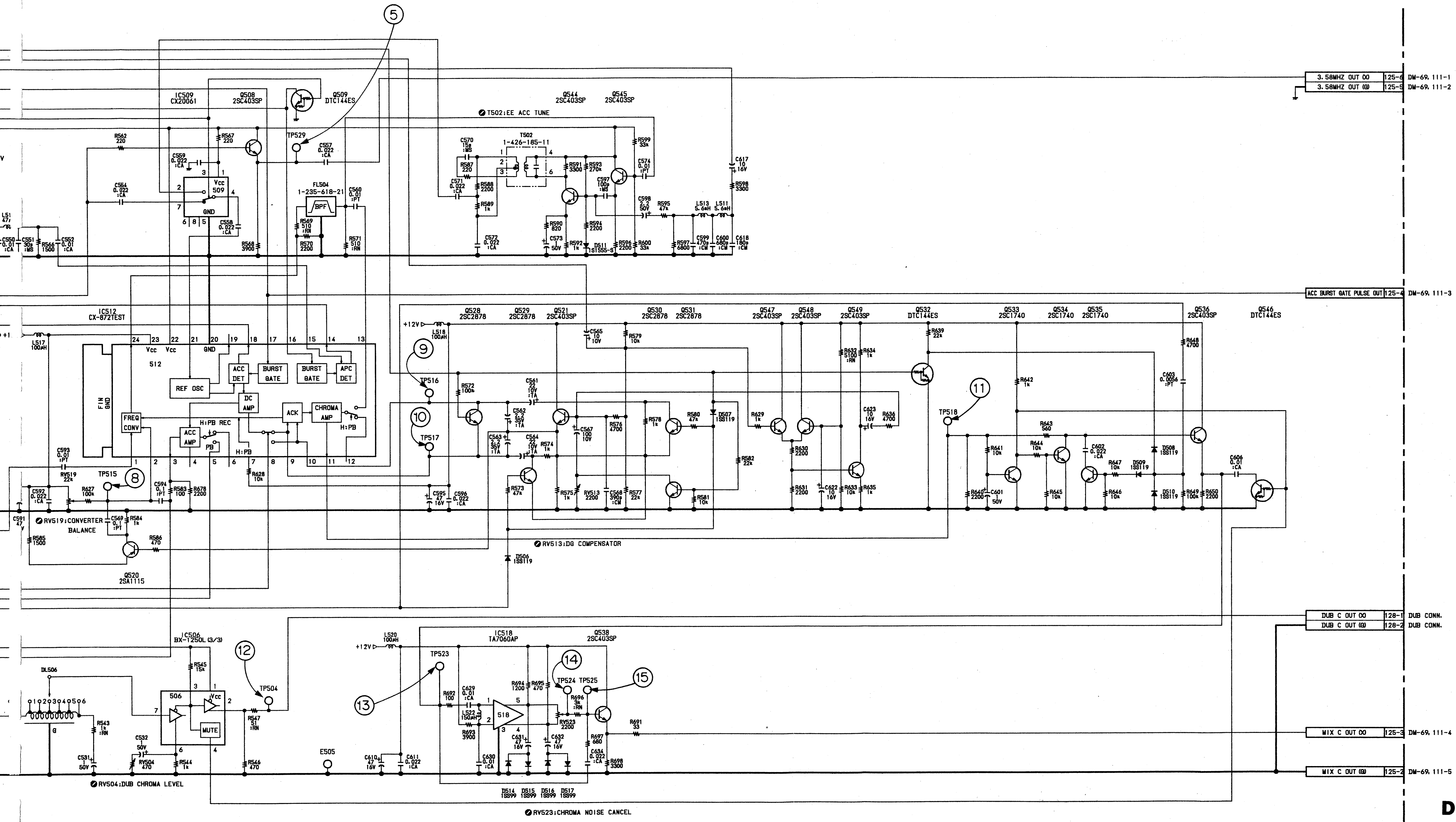


⑮ TP525 PB



DM-70: C PB PROCESSOR

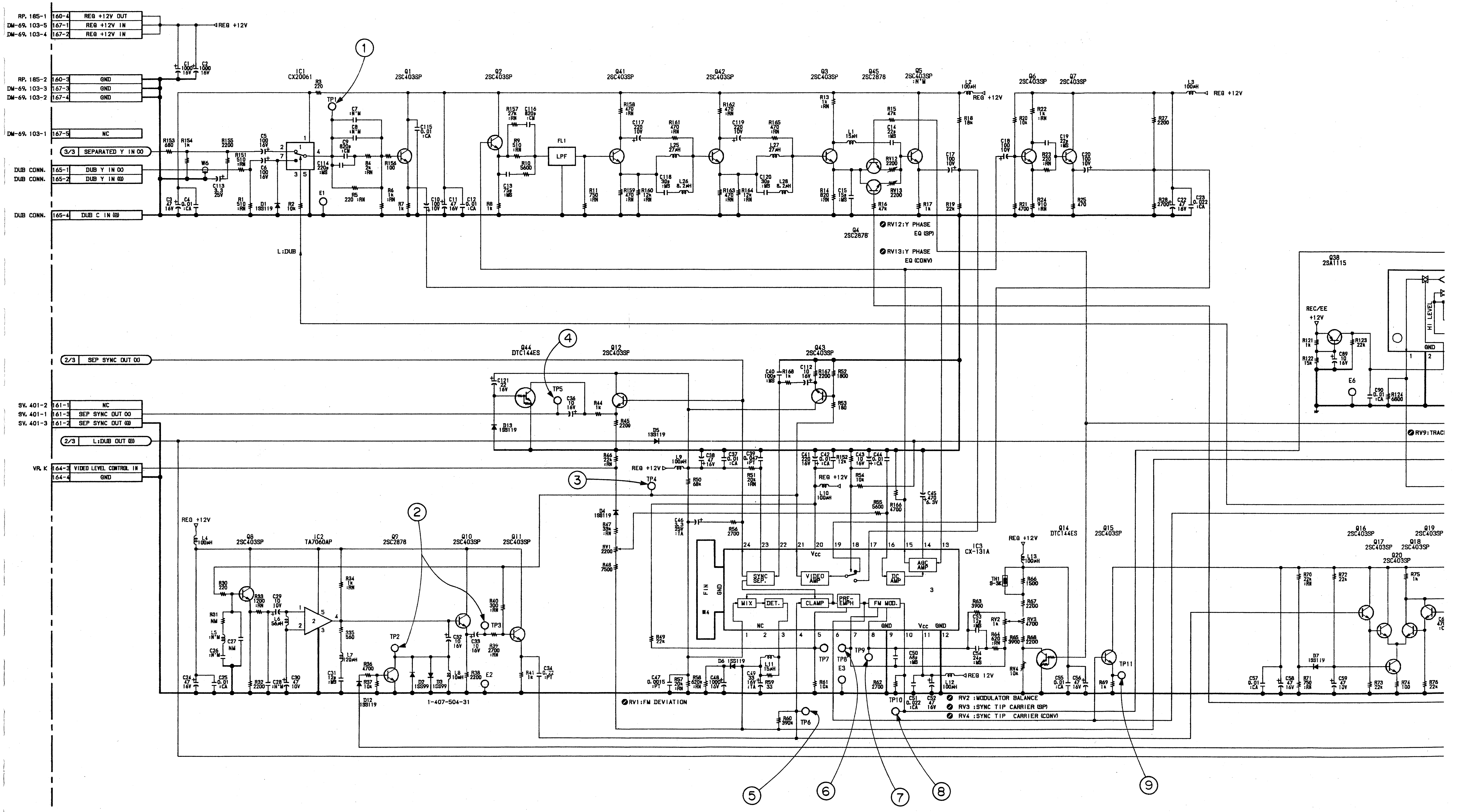

MD. 159-1 129-3 L:DUB SW IN
DM-69, 112-4 126-2 REC/EE +12V IN
DM-69, 113-1 127-8 L:SERVO LOCK ON IN
DM-69, 112-3 126-3 GUARD BAND RULSE IN
DM-69, 112-2 126-4 SYNC Y IN (G)
DM-69, 112-1 126-5 SYNC Y IN (X)
DM-69, 111-6 125-1 SEP SYNC OUT
SV. 408-3 122-2 PB SYNC OUT (X)
SV. 408-2 122-3 PB SYNC OUT (G)
SV. 504-1 121-3 PB SYNC OUT (X)
SV. 504-2 121-2 PB SYNC OUT (G)
SV. 408-1 122-4 L:REV IN
DM-69, 113-2 127-7 REG +12V IN
DM-69, 113-3 127-6 REG +12V IN
DM-69, 113-4 127-5 GND
DM-69, 113-5 127-4 GND
DM-69, 112-5 126-1 SW PULSE IN
MD. 169-2 123-2 REF 4.27MHz OUT (G)
MD. 169-3 123-1 REF 4.27MHz OUT (X)
DM-69, 113-8 127-1 V-BLK IN
DUS-271, I 124-1 EXT SC IN (X)
DUS-271, J 124-2 EXT SC IN (G)
SV. 408-4 122-1 L:TBC EN IN
MD. 159-3 129-1 REF SC IN (X)
MD. 159-2 129-2 REF SC IN (G)
DM-69, 113-7 127-2 688KHz C IN (G)
DM-69, 113-6 127-3 688KHz C IN (X)
①
②
③
④
⑤
⑥
⑦
⑧
TP505
TP506
TP508
TP509
TP512
TP513
TP514
TP515
TP519
TP531
TP532
E502
E503
E504
RV505:VCO DC LEVEL
RV506:APC BURST GATE PHASE
RV507:APC BURST GATE WIDTH
RV508:ACC BURST GATE PHASE
RV509:ACC BURST GATE WIDTH
RV510:APC BURST GATE LEVEL
RV511:ACC BURST GATE LEVEL
RV517:4.27MHz LEVEL
RV518:PB ACC LEVEL
RV519:CONVERTER BALANCE
RV504:DUB CHROMA LEVEL
IC511 CX-859
Vcc
SLOPE
HD
HALF H KILLER
SYNC
SYNC SEP
VIDEO
AFC ERROR
VCO
REC/PB
SAMPLE HOLD
1/2
1/8
1/8
1/350-473 (REC) COUNTER (PB)
COMPARATOR
1D
INHIBIT
APC ERROR
0.7V
FREQ CONV
DECODER
UPPER LIMIT LOWER LIMIT
C1~C8
GND
TRAP
CA
CB
DE COUP
511
Q526 2SC403SP
Q539 2SC2878
Q540 DTC144ES
Q550 DTC144ES
Q543 2SC403SP
Q522 2SC403SP
Q523 2SC2878
Q524 2SC2878
Q525 2SC1740
Q527 2SA1115
Q541 2SC403SP
Q542 2SC403SP
Q537 2SC1740
Q520 2SA1115
IC508 BX-1264L
508
PILOT BURST GATE MMV
ACC BURST GATE MMV
ACC BURST GATE MMV
ACC BURST GATE MMV
IC512 CX-8721EST
512
FREQ CONV
FL503 1-235-619-11
BPF
IN
OUT
IC514 BX-1251L
514
MUTE
LUMI AMP
SC DET
OUT BUFF
IC519 CX20061
519
IC506 BX-1250L (1/3)
IC506 BX-1250L (2/3)
506
FL502 1-235-470-11
LPF
DL506
S501 APC
D501 1SS119
D502 1SS119
D503 1SS119
D504 1SS119
D505 1SS119
D520 1SS119
D521 1SS119
D523 1SS119
D524 1SS119
L507 100μH
L508 100μH
L509 100μH
L510 47μH
L515 470μH
L516 100μH
L517 100μH
L519 100μH
L506 100μH
L523 15μH
L524 10μH
+12V


IC509 CX20061
Q508 2SC403SP
Q509 DTC144ES
TP529
FL504 1-235-618-21
BPF
Q544 2SC403SP
Q545 2SC403SP
T502:EE ACC TUNE
T502 1-426-185-11
3.58MHZ OUT (X)
3.58MHZ OUT (G)
125-6 DM-69, 111-1
125-5 DM-69, 111-2
IC512 CX-872TEST
REF OSC
ACC DET
BURST GATE
BURST GATE
APC DET
DC AMP
ACK
CHROMA AMP
FREQ CONV
ACC AMP
H:PB REC
H:PB
PB
ACC BURST GATE PULSE OUT
125-4 DM-69, 111-3
Q528 2SC2878
Q529 2SC2878
Q521 2SC403SP
Q530 2SC2878
Q531 2SC2878
Q547 2SC403SP
Q548 2SC403SP
Q549 2SC403SP
Q532 DTC144ES
Q533 2SC1740
Q534 2SC1740
Q535 2SC1740
Q536 2SC403SP
Q546 DTC144ES
TP516
TP517
TP518
TP515
RV519:CONVERTER BALANCE
Q520 2SA1115
RV513:DG COMPENSATOR
IC506 BX-1250L (3/3)
MUTE
TP504
RV504:DUB CHROMA LEVEL
E505
IC518 TA7060AP
Q538 2SC403SP
TP523
TP524
TP525
RV523:CHROMA NOISE CANCEL
DUB C OUT (X)
DUB C OUT (G)
128-1 DUB CONN.
128-2 DUB CONN.
MIX C OUT (X)
MIX C OUT (G)
125-3 DM-69, 111-4
125-2 DM-69, 111-5
+12V
⑤
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮

DM-70

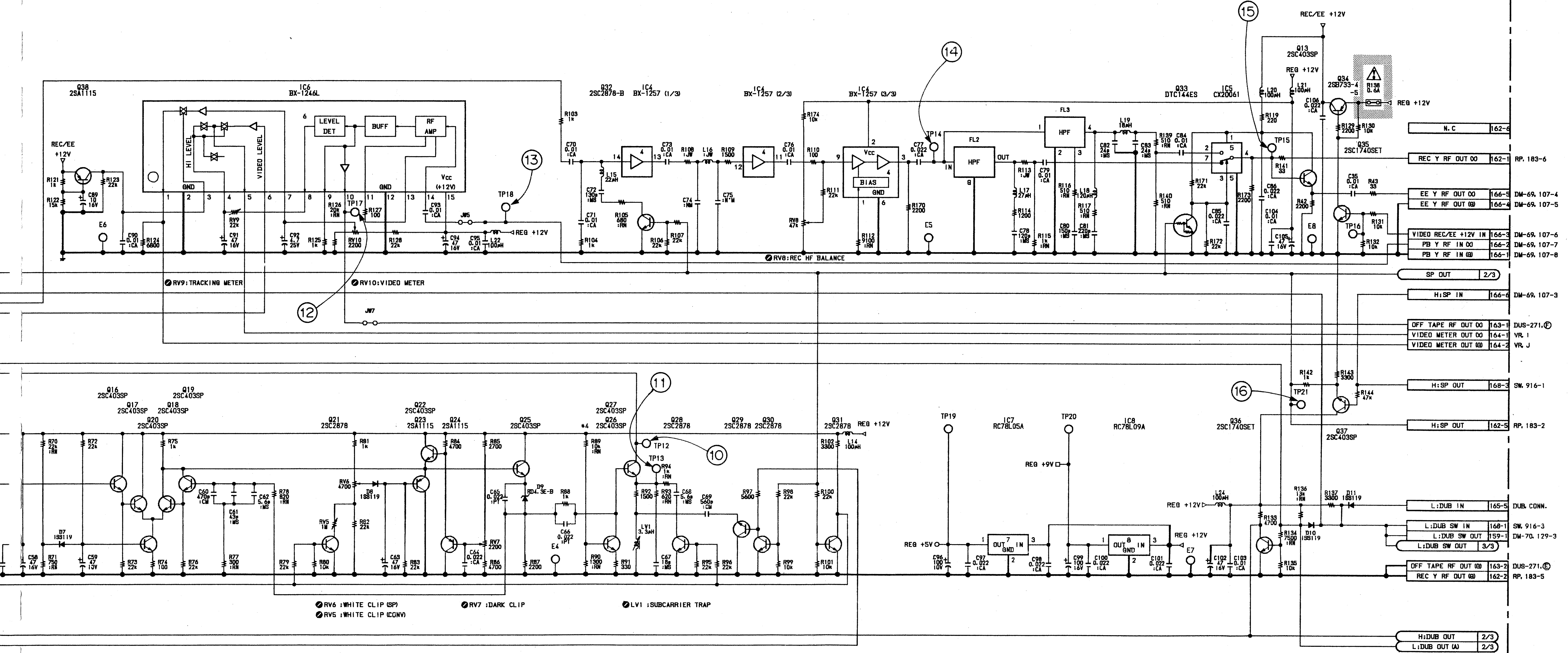
1-629-565-11
VO-9850
VO-9800

ID-59 (1/3): Y MODULATOR, METER DRIVE


RP. 185-1
DM-69. 103-5
DM-69. 103-4
REG +12V OUT
REG +12V IN
REG +12V
RP. 185-2
DM-69. 103-3
DM-69. 103-2
GND
DM-69. 103-1
NC
3/3 SEPARATED Y IN (X)
DUB CONN.
DUB Y IN (X)
DUB Y IN (B)
DUB C IN (B)
IC1 CX20061
TP1
Q1 2SC403SP
Q2 2SC403SP
FL1
LPF
Q41 2SC403SP
Q42 2SC403SP
Q3 2SC403SP
Q45 2SC2878
Q5 2SC403SP
Q4 2SC2878
Q6 2SC403SP
Q7 2SC403SP
L2 100μH
L3 100μH
RV12:Y PHASE EQ (SP)
RV13:Y PHASE EQ (CONV)
L:DUB
Q38 2SA1115
REC/EE
HI LEVEL
RV9:TRAC
2/3 SEP SYNC OUT (X)
Q44 DTC144ES
TP5
Q12 2SC403SP
Q43 2SC403SP
SV. 401-2
SV. 401-1
SV. 401-3
NC
SEP SYNC OUT (X)
SEP SYNC OUT (B)
2/3 L:DUB OUT (B)
VR. K
VIDEO LEVEL CONTROL IN
GND
TP4
Q8 2SC403SP
IC2 TA7060AP
Q9 2SC2878
Q10 2SC403SP
Q11 2SC403SP
TP2
TP3
E2
1-407-504-31
IC3 CX-131A
SYNC SEP.
VIDEO AMP
DC AMP
AGC AMP
MIX
DET.
CLAMP
PRE-EMPH
FM MOD.
Vcc
GND
FIN
TP6
TP7
TP8
TP9
E3
TP10
RV1:FM DEVIATION
RV2 :MODULATOR BALANCE
RV3 :SYNC TIP CARRIER (SP)
RV4 :SYNC TIP CARRIER (CONV)
Q14 DTC144ES
Q15 2SC403SP
TP11
Q16 2SC403SP
Q17 2SC403SP
Q18 2SC403SP
Q19 2SC403SP
Q20 2SC403SP
①
②
③
④
⑤
⑥
⑦
⑧
⑨

注意 1：⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

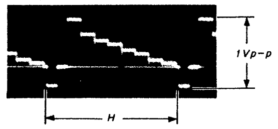
NOTE:
The ⚠ -marked components are critical to safety. Replace only with same components as specified.


Q38 2SA1115
IC6 BX-1246L
REC/EE +12V
HI LEVEL
VIDEO LEVEL
LEVEL DET
BUFF
RF AMP
GND
Vcc (+12V)
TP17
TP18
⑬
⑫
E6
RV9: TRACKING METER
RV10: VIDEO METER
JW5
JW7
REG +12V
Q32 2SC2878-B
IC4 BX-1257 (1/3)
IC4 BX-1257 (2/3)
IC4 BX-1257 (3/3)
BIAS
TP14
⑭
E5
RV8: REC HF BALANCE
FL2 HPF
FL3 HPF
IN
OUT
Q33 DTC144ES
IC5 CX20061
⑮
REC/EE +12V
Q13 2SC403SP
REG +12V
Q34 2SB733-4-5
R138 0.6A
TP15
Q35 2SC1740SET
E8
TP16
N.C 162-6
REC Y RF OUT (X) 162-1 RP. 183-6
EE Y RF OUT (X) 166-5 DM-69. 107-4
EE Y RF OUT (G) 166-4 DM-69. 107-5
VIDEO REC/EE +12V IN 166-3 DM-69. 107-6
PB Y RF IN (X) 166-2 DM-69. 107-7
PB Y RF IN (G) 166-1 DM-69. 107-8
SP OUT 2/3
H;SP IN 166-6 DM-69. 107-3
OFF TAPE RF OUT (X) 163-1 DUS-271.Ⓕ
VIDEO METER OUT (X) 164-1 VR. I
VIDEO METER OUT (G) 164-2 VR. J
H:SP OUT 168-3 SW. 916-1
H;SP OUT 162-5 RP. 183-2
Q16 2SC403SP
Q17 2SC403SP
Q18 2SC403SP
Q19 2SC403SP
Q20 2SC403SP
Q21 2SC2878
Q22 2SC403SP
Q23 2SA1115
Q24 2SA1115
Q25 2SC403SP
Q26 2SC403SP
Q27 2SC403SP
Q28 2SC2878
Q29 2SC2878
Q30 2SC2878
Q31 2SC2878
⑪
⑩
TP12
TP13
E4
LV1 3.3μH
D7 1SS119
D8 1SS119
D9 RD4.3E-B
RV6: WHITE CLIP (SP)
RV5: WHITE CLIP (CONV)
RV7: DARK CLIP
LV1: SUBCARRIER TRAP
TP19
TP20
IC7 RC78L05A
IC8 RC78L09A
REG +9V
REG +5V
E7
Q36 2SC1740SET
Q37 2SC403SP
TP21
⑯
D10 1SS119
D11 1SS119
L:DUB IN 165-5 DUB. CONN.
L;DUB SW IN 168-1 SW. 916-3
L:DUB SW OUT 159-1 DM-70. 129-3
L;DUB SW OUT 3/3
OFF TAPE RF OUT (G) 163-2 DUS-271.Ⓔ
REC Y RF OUT (G) 162-2 RP. 183-5
H;DUB OUT 2/3
L;DUB OUT (A) 2/3

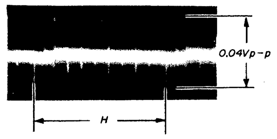
MD-59 (1/3)

1-629-563-11
VO-9850

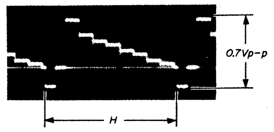
① TP1 REC



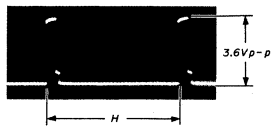
② TP2 TP3 REC



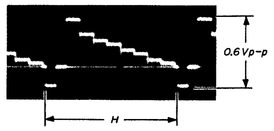
③ TP4 REC



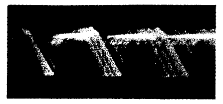
④ TP5 REC



⑤ TP6 REC

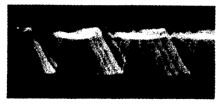


⑥ TP8 REC



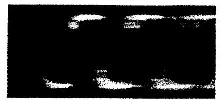
H; 0.1μsec/div
V; 0.5V/div

⑦ TP9 REC



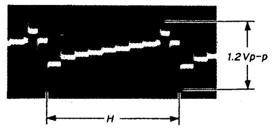
H; 0.1μsec/div
V; 0.5V/div

⑧ TP10 REC

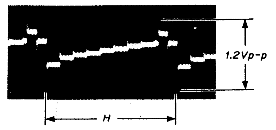


H; 0.1μsec/div
V; 0.5V/div

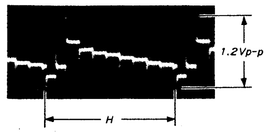
⑨ TP11 REC



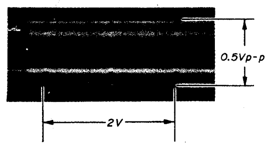
⑩ TP12 REC



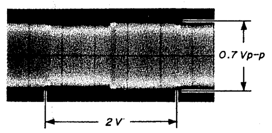
⑪ TP13 REC



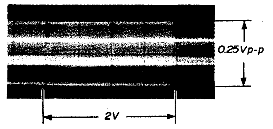
⑫ TP17 REC



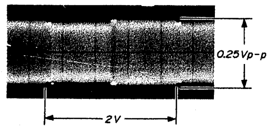
PB



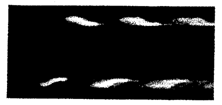
⑬ TP18 REC



PB

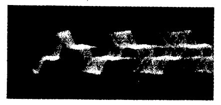


⑭ TP14 REC



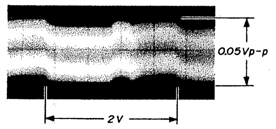
H; 0.1μsec/div
V; 1V/div

⑮ TP15 REC



H; 0.1μsec/div
V; 1V/div

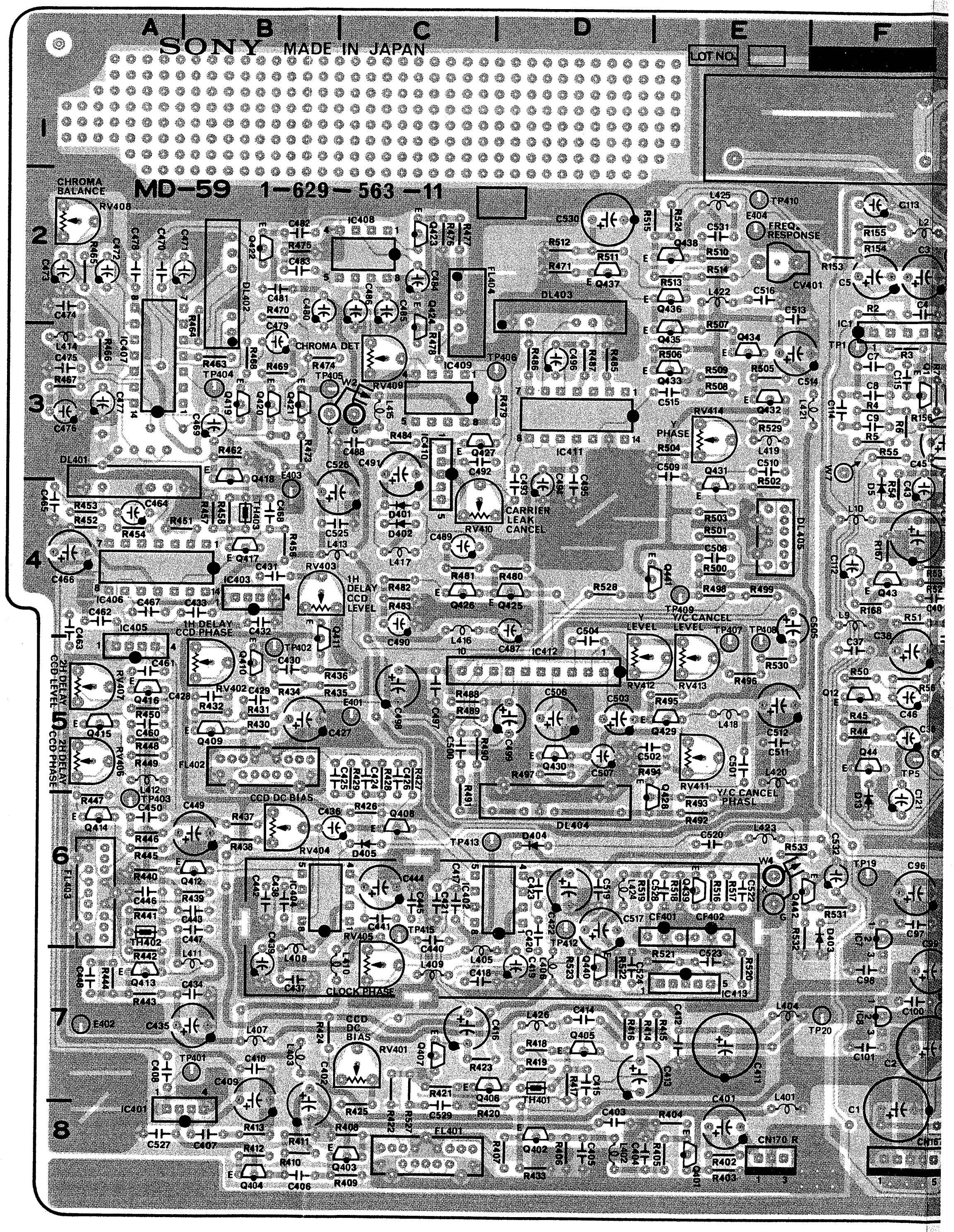
⑯ TP21 REC



MD-59 (1/3): Y MODULATOR, METER DRIVE

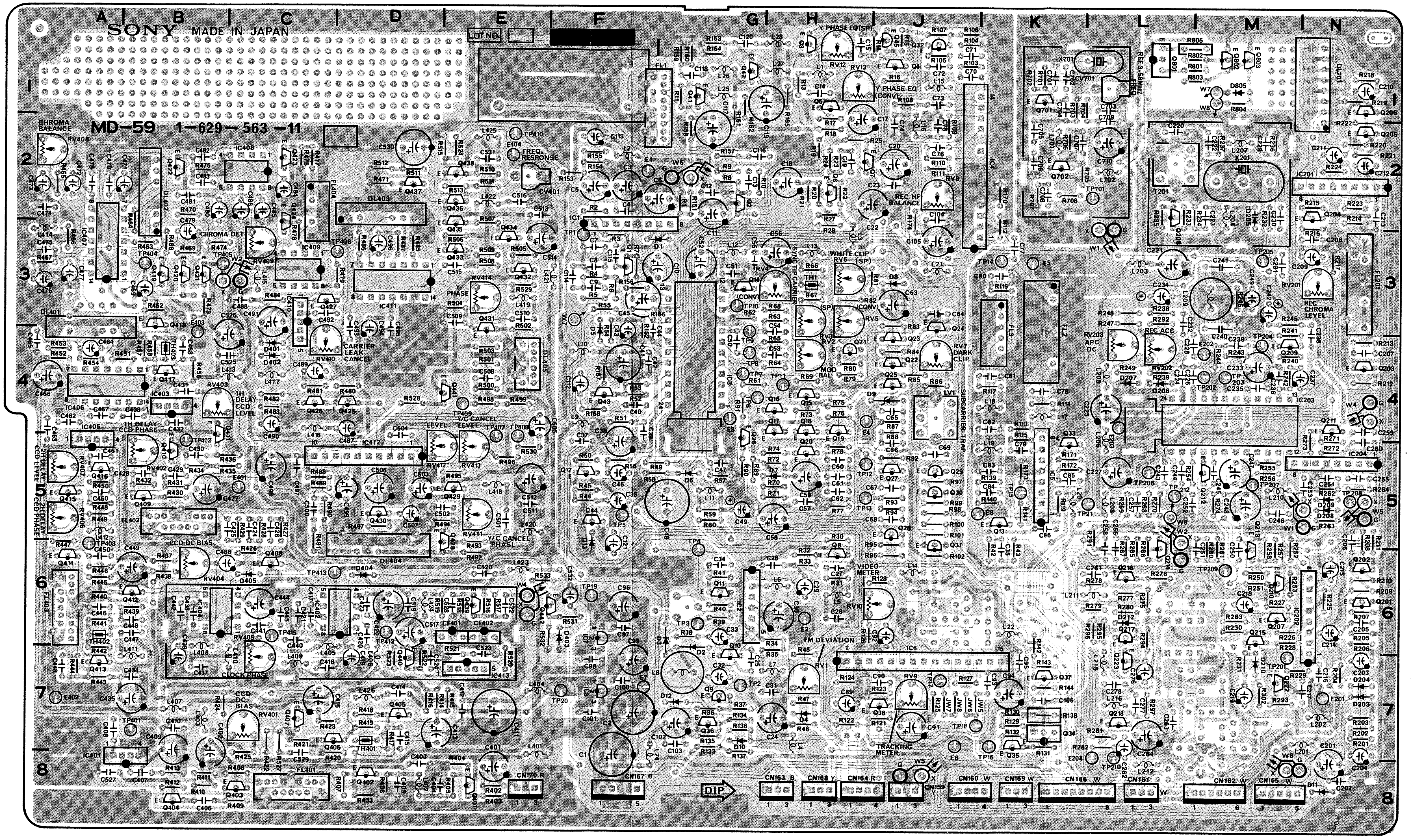
MD-59 (1-629-563-11) C

CF401	E-6
CF402	E-6
CN159	J-8
CN160	J-8
CN161	L-8
CN162	M-8
CN163	H-8
CN164	H-8
CN165	M-8
CN166	K-8
CN167	F-8
CN168	H-8
CN169	K-8
CN170	E-8
CV401	E-2
CV701	L-1
DL201	N-1
DL401	A-3
DL402	B-2
DL403	D-2
DL404	D-6
DL405	E-4
D1	G-3
D2	G-6
D3	G-6
D4	H-7
D5	F-3
D6	G-5
D7	H-5
D8	J-3
D9	J-4
D10	G-7
D11	N-8
D12	G-7
D13	F-5
D204	N-7
D205	M-2
D206	L-4
D207	L-4
D208	N-5
D209	N-5
D210	M-7
D212	L-6
D401	C-4
D402	C-4
D403	F-6
D404	D-6
D405	C-6
D805	M-1
FL1	F-1
FL2	K-3
FL3	K-3
FL201	N-3
FL401	C-8
FL402	B-5
FL403	A-6
FL404	C-2
IC1	F-2
IC2	G-6
IC3	G-4
IC4	K-2
IC5	K-5
IC6	J-6
IC7	F-6
IC8	F-7
IC201	N-2
IC202	N-6
IC203	N-4
IC204	N-5
IC401	A-8
IC402	C-6
IC403	B-4
IC404	B-6
IC405	A-4
IC406	A-4
IC407	A-3
IC408	C-2
IC409	C-3
IC410	C-3
IC411	D-3
IC412	D-5
IC413	E-7
LV1	J-4
L1	H-1
L2	F-2
L3	H-3
L4	H-7
L6	H-6
L7	H-7
L8	G-7
L9	F-4
L10	F-4
L11	G-5
L12	G-3
L13	H-3
L14	J-6
L15	J-1
L17	K-4
118	K-4
L19	K-5
L20	K-5
L21	J-3
L22	K-6
L24	G-7
L25	G-1
L26	G-1
L27	H-1
L28	H-1
L201	N-7
L202	N-7
L203	L-3
L204	M-2
L205	L-4
L206	L-4
L207	M-2
L208	L-5
L209	L-3
L210	M-5
L211	K-6
L212	L-8
L215	L-7
L216	L-7
L401	E-7
L402	D-8
L403	B-7
L404	E-7
L405	C-7
L406	D-7
L407	B-7
L408	B-7
L409	C-6
L410	C-7
L411	B-7
L412	A-5
L413	C-4
L414	A-3
L415	C-3
L416	C-4
L417	C-4
L418	E-5
L419	E-3
L420	E-5
L421	E-3
L422	E-2
L423	E-6
L424	D-6
L425	E-2
L426	D-7
L701	K-2
L702	L-2
Q1	F-3
Q2	G-2
Q3	H-1
Q4	J-1
Q5	H-1
Q6	H-2
Q7	H-2
Q8	H-6
Q9	G-7
Q10	G-6
Q11	G-6
Q12	F-5
Q13	K-5
Q14	G-3
Q15	H-4
Q16	H-4
Q17	H-4
Q18	H-4
Q19	H-4
Q20	H-5
Q21	H-4
Q22	J-4
Q23	J-4
Q24	J-3
Q25	J-4
Q26	G-4
Q27	J-5
Q28	J-5
Q29	J-5
Q30	J-5
Q31	J-6
Q32	J-1
Q33	K-4
Q34	K-7
Q35	K-7
Q36	G-7
Q37	K-7
Q38	J-7
Q41	G-1
Q42	G-1
Q43	F-4
Q44	F-5
Q45	J-1
Q201	N-6
Q202	N-6
Q203	N-4
Q204	N-2
Q205	N-2
Q206	N-1
Q207	M-6
Q208	L-3
Q209	M-4
Q210	M-6
Q211	N-4
Q212	M-5
Q213	M-5
Q214	L-6
Q215	M-6
Q216	L-6
Q217	L-6
Q218	L-7
Q222	M-7
Q223	L-7
Q401	E-8
Q402	D-8
Q403	C-8
Q404	B-8
Q405	D-7
Q406	D-7
Q407	C-7
Q408	C-6
Q409	B-5
Q410	B-5
Q411	C-4
Q412	B-6
Q413	A-7
Q414	A-6
Q415	A-5
Q416	A-5
Q417	B-4
Q418	B-3
Q419	B-3
Q420	B-3
Q421	B-3
Q422	B-2
Q423	C-2
Q424	C-2
Q425	D-4
Q426	C-4
Q427	C-3
Q428	E-6
Q429	E-5
Q430	D-5
Q431	E-3
Q432	E-3
Q433	E-3
Q434	E-3
Q435	E-3
Q436	E-2
Q437	D-2
Q438	E-2
Q439	E-6
Q440	D-7
Q441	E-4
Q442	E-6
Q701	K-1
Q702	K-2
Q801	L-1
Q802	M-1
Q803	M-1
RV1	H-7
RV2	H-4
RV3	H-4
RV4	G-3
RV5	J-4
RV6	H-3
RV7	J-4
RV8	J-2
RV9	J-7
RV10	H-6
RV12	H-1
RV13	H-1
RV201	M-3
RV202	L-4
RV203	L-4
RV401	C-7
RV402	B-5
RV403	B-4
RV404	B-6
RV405	C-6
RV406	A-5
RV407	A-5
RV408	A-2
RV409	C-3
RV410	C-4
RV411	E-5
RV412	D-5
RV413	E-5
RV414	E-3
TH1	H-3
TH401	D-7
TH402	A-6
TH403	B-4
T201	L-2
X201	M-2
X701	K-1



ET R DRIVE

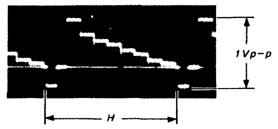
7	Q34	K-7	Q435	E-3
-7	Q35	K-7	Q436	E-2
E-7	Q36	G-7	Q437	D-2
-8	Q37	K-7	Q438	E-2
7	Q38	J-7	Q439	E-6
-7	Q41	G-1	Q440	D-7
C-7	Q42	G-1	Q441	E-4
-7	Q43	F-4	Q442	E-6
-7	Q44	F-5	Q701	K-1
-7	Q45	J-1	Q702	K-2
C-6	Q201	N-6	Q801	L-1
-7	Q202	N-6	Q802	M-1
-7	Q203	N-4	Q803	M-1
-5	Q204	N-2		
C-4	Q205	N-2	RV1	H-7
-3	Q206	N-1	RV2	H-4
-3	Q207	M-6	RV3	H-4
-4	Q208	L-3	RV4	G-3
C-4	Q209	M-4	RV5	J-4
5	Q210	M-6	RV6	H-3
3	Q211	N-4	RV7	J-4
5	Q212	M-5	RV8	J-2
E-3	Q213	M-5	RV9	J-7
-2	Q214	L-6	RV10	H-6
6	Q215	M-6	RV12	H-1
-6	Q216	L-6	RV13	H-1
E-2	Q217	L-6	RV201	M-3
-7	Q218	L-7	RV202	L-4
-2	Q222	M-7	RV203	L-4
2	Q223	L-7	RV401	C-7
	Q401	E-8	RV402	B-5
F-3	Q402	D-8	RV403	B-4
-2	Q403	C-8	RV404	B-6
-1	Q404	B-8	RV405	C-6
J-1	Q405	D-7	RV406	A-5
H-1	Q406	D-7	RV407	A-5
-2	Q407	C-7	RV408	A-2
-2	Q408	C-6	RV409	C-3
H-6	Q409	B-5	RV410	C-4
G-7	Q410	B-5	RV411	E-5
-6	Q411	C-4	RV412	D-5
-6	Q412	B-6	RV413	E-5
F-5	Q413	A-7	RV414	E-3
K-5	Q414	A-6		
-3	Q415	A-5	TH1	H-3
-4	Q416	A-5	TH401	D-7
H-4	Q417	B-4	TH402	A-6
H-4	Q418	B-3	TH403	B-4
-4	Q419	B-3		
-4	Q420	B-3	T201	L-2
H-5	Q421	B-3		
H-4	Q422	B-2	X201	M-2
-4	Q423	C-2	X701	K-1
-4	Q424	C-2		
-3	Q425	D-4		
J-4	Q426	C-4		
-4	Q427	C-3		
-5	Q428	E-6		
-5	Q429	E-5		
J-5	Q430	D-5		
-5	Q431	E-3		
-6	Q432	E-3		
-1	Q433	E-3		
K-4	Q434	E-3		


A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
7
8
SONY MADE IN JAPAN
LOT NO.
MD-59 1-629-563-11
CHROMA BALANCE
Y PHASE EQ (SP)
Y PHASE EQ (CONV)
FREQ. RESPONSE
REC HF BALANCE
CHROMA DET
WHITE CLIP (SP)
SYNC TIP CARRIER
CARRIER LEAK CANCEL
Y PHASE
1H DELAY CCD LEVEL
1H DELAY CCD PHASE
LEVEL
Y/C CANCEL LEVEL
Y/C CANCEL PHASE
CCD DC BIAS
CLOCK PHASE
DARK CLIP
MOD BAL
SUBCARRIER TRAP
VIDEO METER
FM DEVIATION
TRACKING METER
REC CHROMA LEVEL
REC ACC
APC DC
REF 3.58MHz FREQ
DIP
CN163 B
CN168 Y
CN164 R
CN160 W
CN169 W
CN166 W
CN161
CN162 W
CN165 W
CN167 B
CN170 R

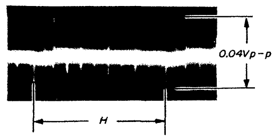
MD-59

—COMPONENT SIDE—
1-629-563-11
VO-9850

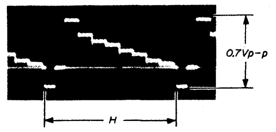
① TP1 REC



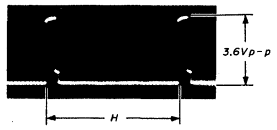
② TP2 TP3 REC



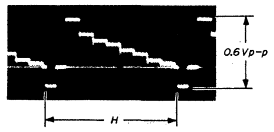
③ TP4 REC



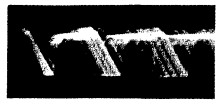
④ TP5 REC



⑤ TP6 REC

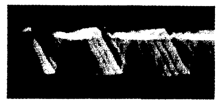


⑥ TP8 REC



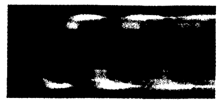
H; 0.1μsec/div
V; 0.5V/div

⑦ TP9 REC



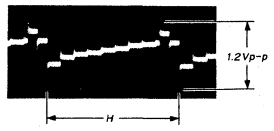
H; 0.1μsec/div
V; 0.5V/div

⑧ TP10 REC

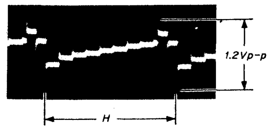


H; 0.1μsec/div
V; 0.5V/div

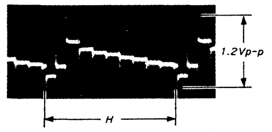
⑨ TP11 REC



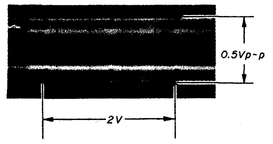
⑩ TP12 REC



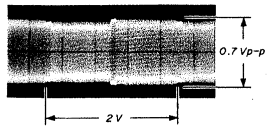
⑪ TP13 REC



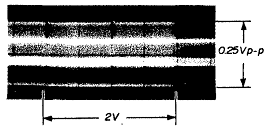
⑫ TP17 REC



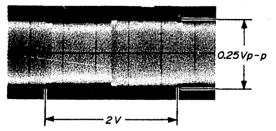
PB



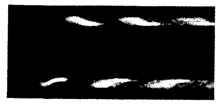
⑬ TP18 REC



PB

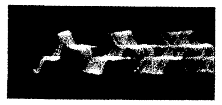


⑭ TP14 REC



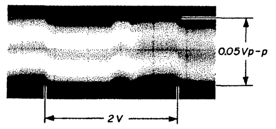
H; 0.1μsec/div
V; 1V/div

⑮ TP15 REC



H; 0.1μsec/div
V; 1V/div

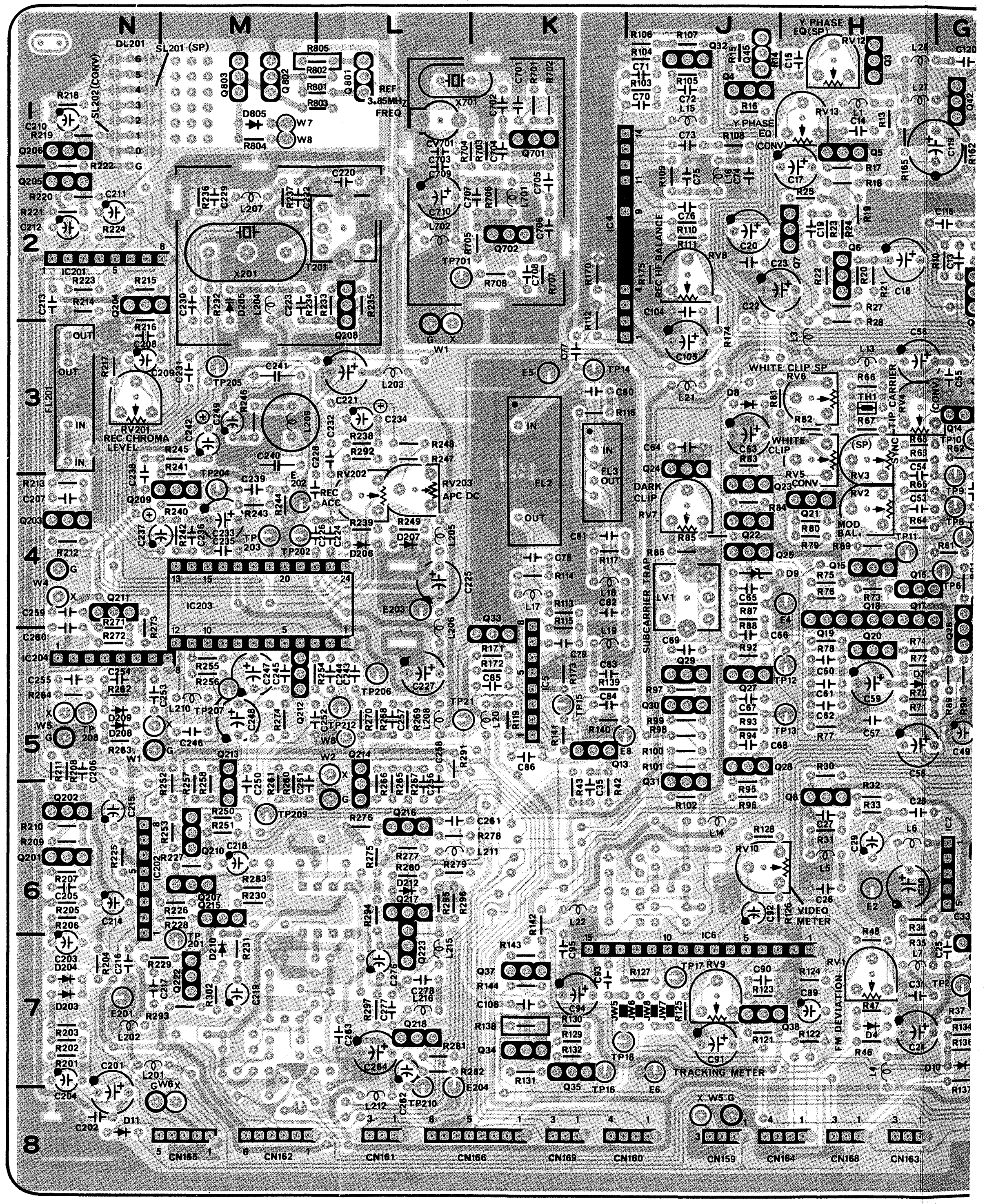
⑯ TP21 REC



MD-59 (1/3): Y MODULATOR, METER DRIVE

MD-59 (1-629-563-11) S

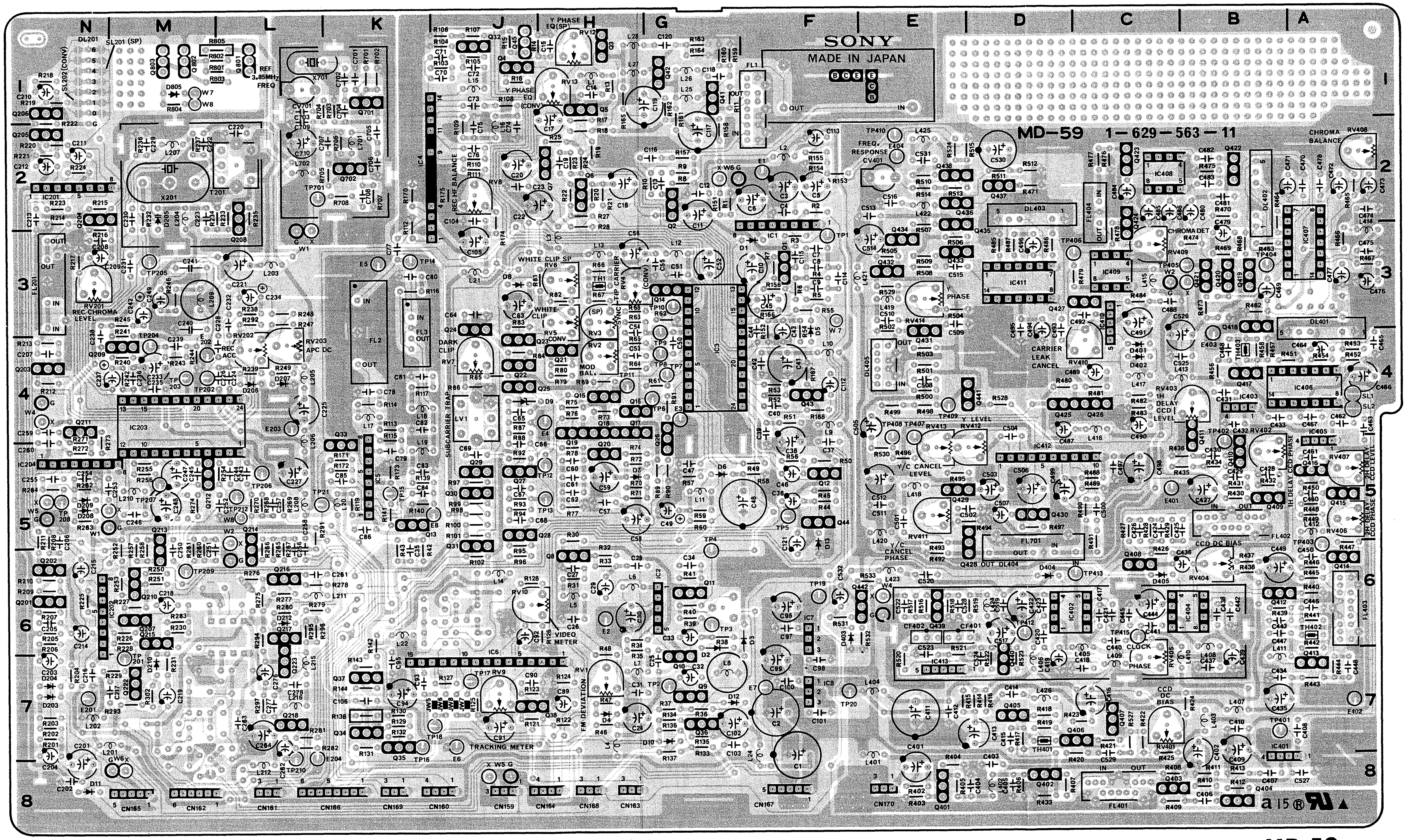
E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2


N
M
L
K
J
H
G
1
2
3
4
5
6
7
8
REC CHROMA LEVEL
RV201
RV202 REC ACC
RV203 APC DC
REF 3.58MHz FREQ
Y PHASE EQ(SP)
Y PHASE EQ (CONV)
REC HF BALANCE
WHITE CLIP SP
WHITE CLIP
DARK CLIP
SUBCARRIER TRAP
MOD BAL
VIDEO METER
FM DEVIATION
TRACKING METER
IC201
IC203
IC4
IC6
FL1
FL2
FL3
X201
X701
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN164
CN168
CN163

MD-59 (1/3): Y MODULATOR, METER DRIVE

MD-59 (1-629-563-11) S

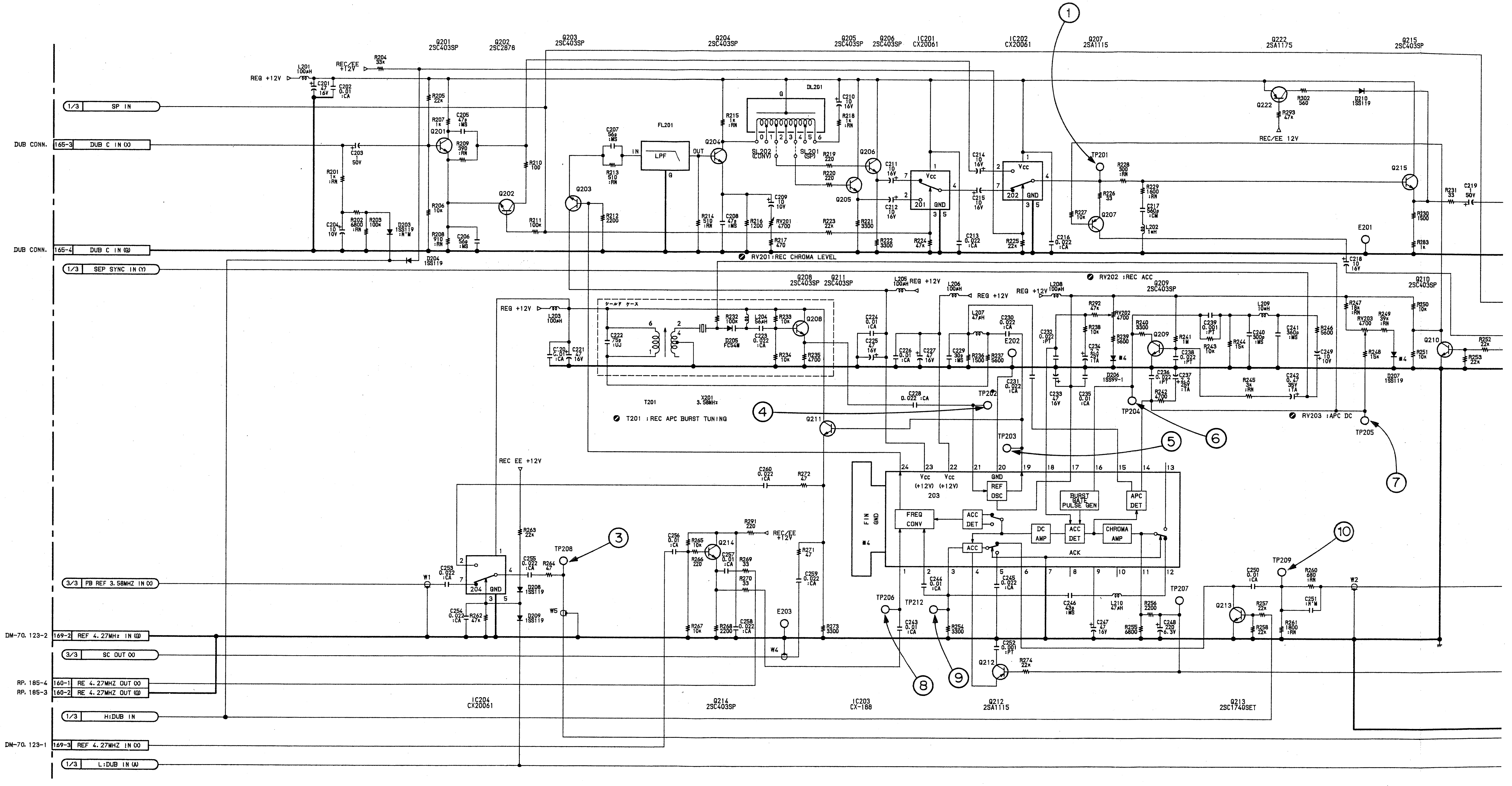
E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2

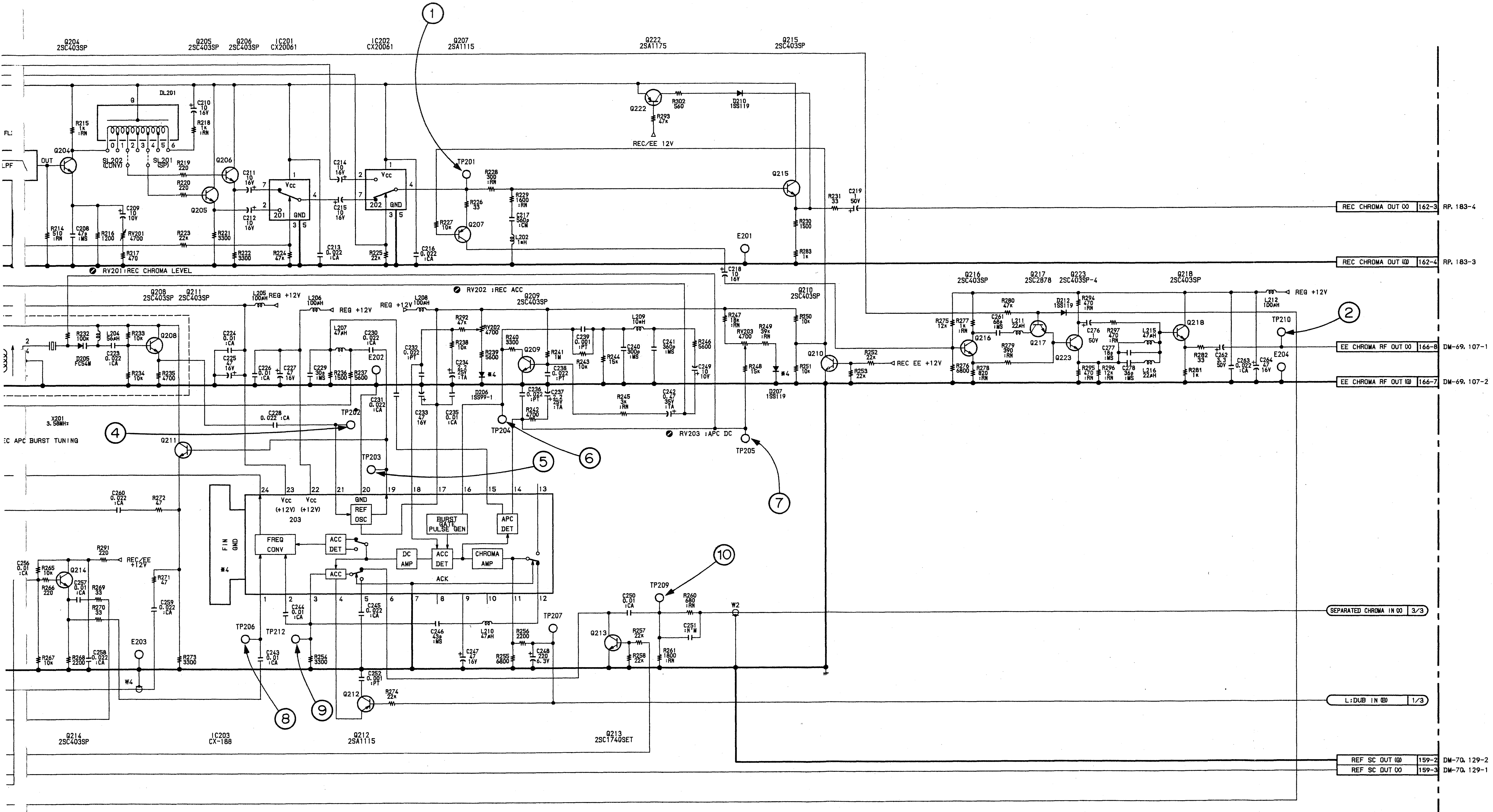

N
M
L
K
J
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
SONY
MADE IN JAPAN
MD-59 1-629-563-11
REC CHROMA LEVEL
APC DC
REC ACC
REC HF BALANCE
WHITE CLIP SP
WHITE CLIP
DARK CLIP
SUBCARRIER TRAP
MOD BAL
TIP CARRIER
VIDEO METER
FM DEVIATION
TRACKING METER
Y PHASE EQ (SP)
Y PHASE EQ (CONV)
FREQ. RESPONSE
CHROMA BALANCE
CHROMA DET
Y PHASE
CARRIER LEAK CANCEL
1H DELAY CCD LEVEL
Y LEVEL
Y/C CANCEL LEVEL
Y/C CANCEL PHASE
1H DELAY CCD PHASE
2H DELAY CCD PHASE
CCD DC BIAS
CLOCK PHASE
REF 3.58MHz FREQ
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN164
CN168
CN163
CN167
CN170

MD-59

—SOLDERING SIDE—
1-629-563-11
VO-9850

MD-59 (2/3): C REC PROCESSOR


1/3 SP IN
DUB CONN. 165-3 DUB C IN (X)
DUB CONN. 165-4 DUB C IN (G)
1/3 SEP SYNC IN (Y)
3/3 PB REF 3.58MHZ IN (X)
DM-70, 123-2 169-2 REF 4.27MHz IN (G)
3/3 SC OUT (X)
RP. 185-4 160-1 RE 4.27MHZ OUT (X)
RP. 185-3 160-2 RE 4.27MHZ OUT (G)
1/3 H:DUB IN
DM-70, 123-1 169-3 REF 4.27MHZ IN (X)
1/3 L:DUB IN (A)
REG +12V
REC/EE +12V
REC/EE 12V
REC EE +12V
Q201 2SC403SP
Q202 2SC2878
Q203 2SC403SP
Q204 2SC403SP
Q205 2SC403SP
Q206 2SC403SP
IC201 CX20061
IC202 CX20061
Q207 2SA1115
Q222 2SA1175
Q215 2SC403SP
Q208 2SC403SP
Q211 2SC403SP
Q209 2SC403SP
Q210 2SC403SP
IC204 CX20061
Q214 2SC403SP
IC203 CX-188
Q212 2SA1115
Q213 2SC1740SET
FL201
LPF
IN
OUT
DL201
SL202 (CONV)
SL201 (SP)
T201
X201 3.58MHz
T201 : REC APC BURST TUNING
RV201 : REC CHROMA LEVEL
RV202 : REC ACC
RV203 : APC DC
シールド ケース
TP201
TP202
TP203
TP204
TP205
TP206
TP207
TP208
TP209
TP212
E201
E202
E203
W1
W2
W4
W5
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
FIN GND
Vcc (+12V)
GND
REF OSC
BURST GATE PULSE GEN
APC DET
FREQ CONV
ACC DET
DC AMP
CHROMA AMP
ACK
D203 1SS119
D204 1SS119
D205 FC54M
D206 1SS99-1
D207 1SS119
D208 1SS119
D209 1SS119
D210 1SS119
L201 100μH
L202 1mH
L203 100μH
L204 56μH
L205 100μH
L206 100μH
L207 47μH
L208 100μH
L209 10μH
L210 47μH


Q204 2SC403SP
Q205 2SC403SP
Q206 2SC403SP
IC201 CX20061
IC202 CX20061
Q207 2SA1115
Q222 2SA1175
Q215 2SC403SP
DL201
SL202 (CONT)
SL201 (SP)
RV201 :REC CHROMA LEVEL
REC/EE 12V
TP201
E201
REC CHROMA OUT (X) 162-3 RP. 183-4
REC CHROMA OUT (G) 162-4 RP. 183-3
Q208 2SC403SP
Q211 2SC403SP
Q209 2SC403SP
Q210 2SC403SP
Q216 2SC403SP
Q217 2SC2878
Q223 2SC403SP-4
Q218 2SC403SP
RV202 :REC ACC
RV203 :APC DC
REG +12V
REC EE +12V
TP202
TP203
TP204
TP205
TP210
E202
E204
X201 3.58MHz
EC APC BURST TUNING
EE CHROMA RF OUT (X) 166-8 DM-69, 107-1
EE CHROMA RF OUT (G) 166-7 DM-69, 107-2
FREQ CONV
ACC DET
DC AMP
ACC DET
CHROMA AMP
REF OSC
BURST GATE PULSE GEN
APC DET
ACK
Vcc (+12V)
Vcc (+12V)
GND
203
FIN GND
REC/EE +12V
TP206
TP212
TP207
TP209
E203
W4
W2
SEPARATED CHROMA IN (X) 3/3
L:DUB IN (G) 1/3
REF SC OUT (G) 159-2 DM-70, 129-2
REF SC OUT (X) 159-3 DM-70, 129-1
Q214 2SC403SP
IC203 CX-188
Q212 2SA1115
Q213 2SC1740SET
①
②
④
⑤
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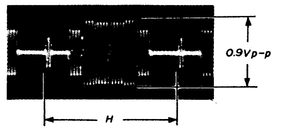
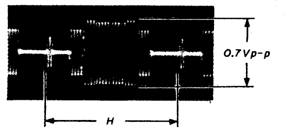
MD-59 (2/3)

1-629-563-11
VO-9850

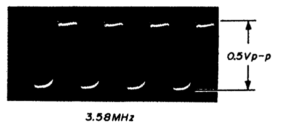
① TP201
REC



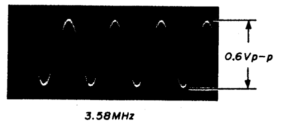
② TP210
REC



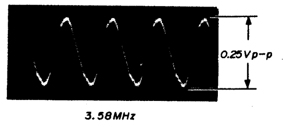
③ TP208
REC



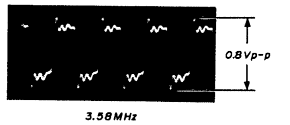
PB



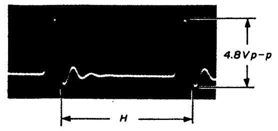
④ TP202
REC



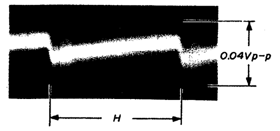
⑤ TP203
REC



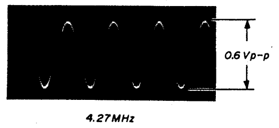
⑥ TP204
REC



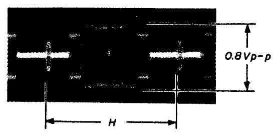
⑦ TP205
REC



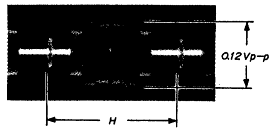
⑧ TP206
REC



⑨ TP212
REC



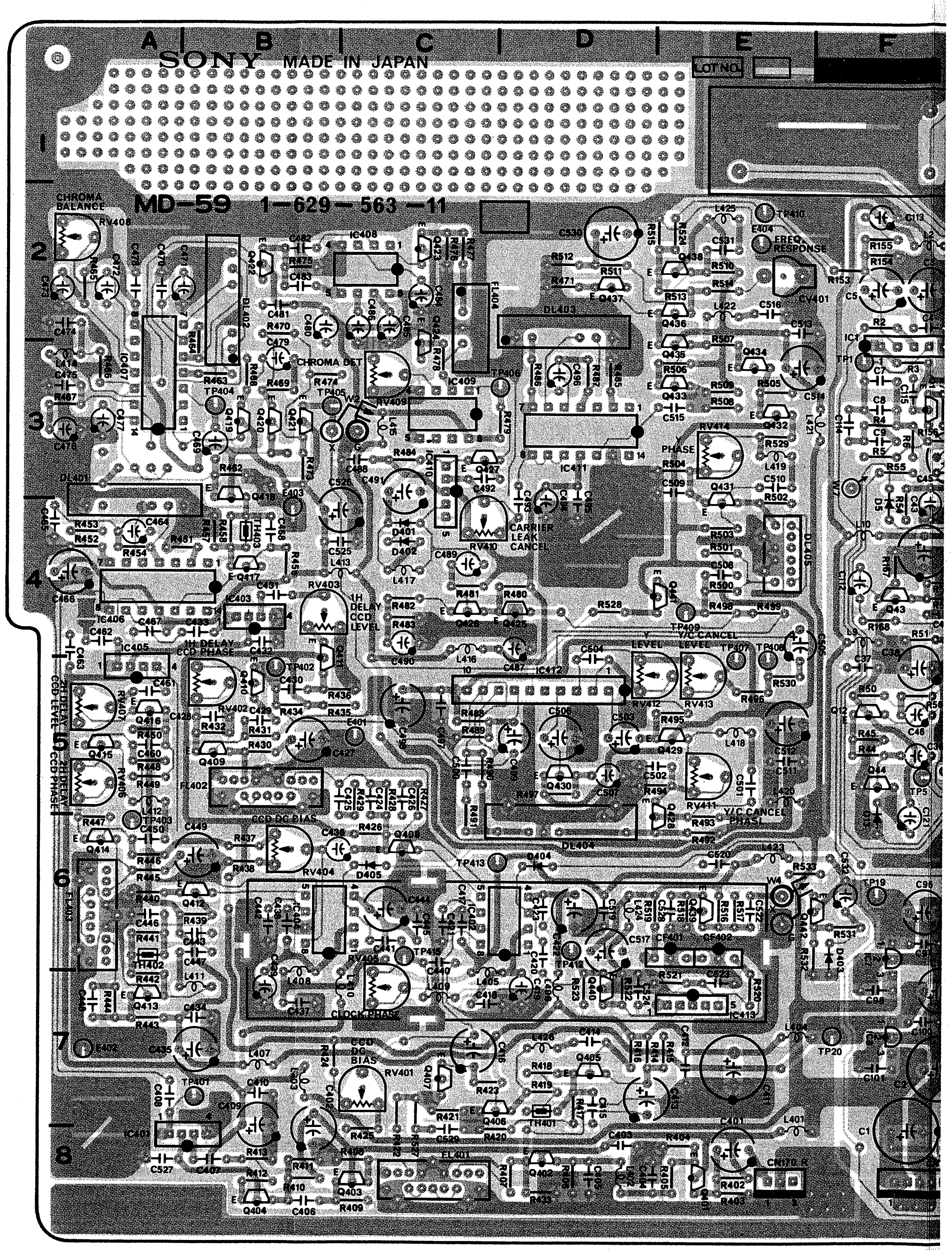
⑩ TP209
REC



MD-59 (2/3): C REC PROCESSOR

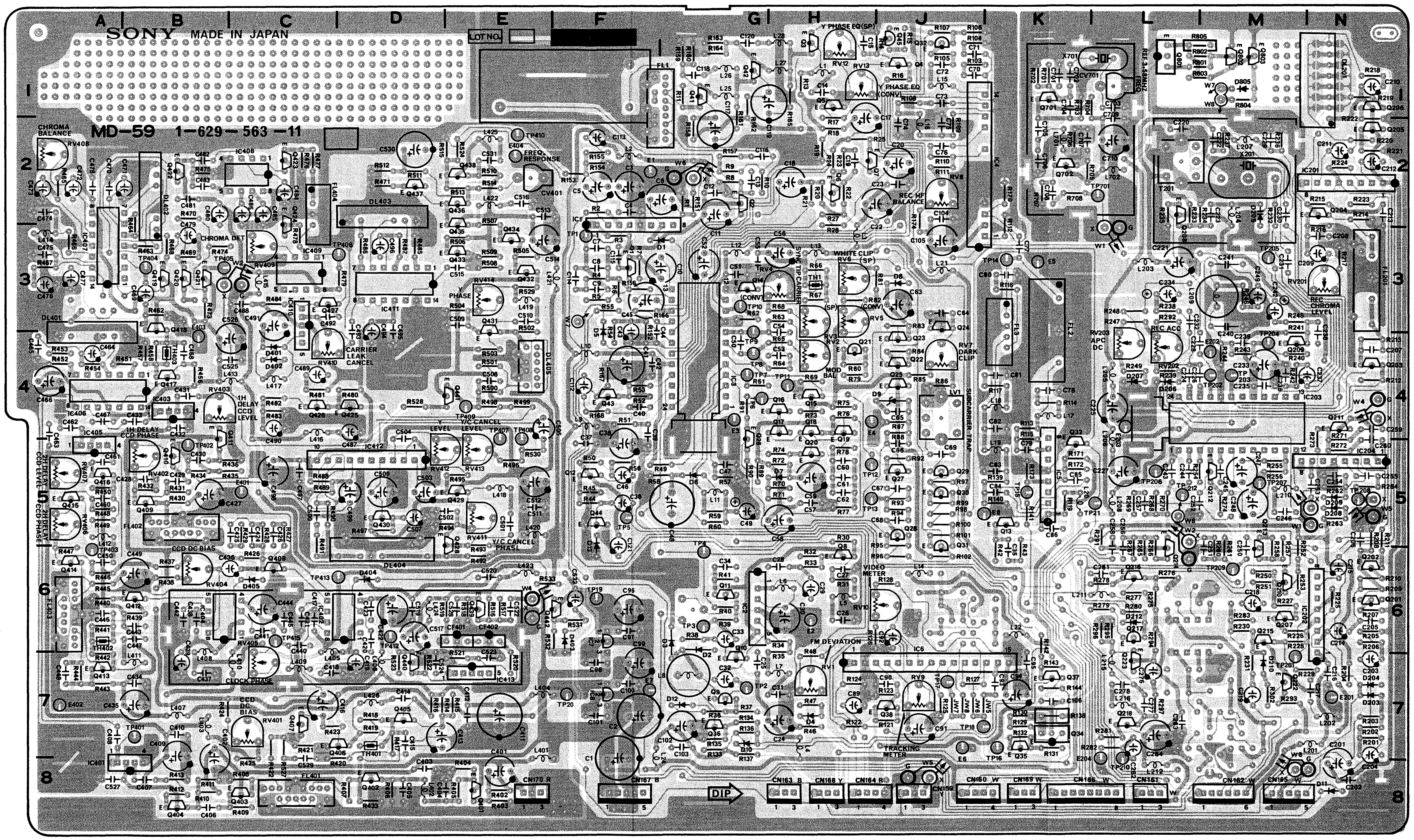
MD-59 (1-629-563-11) C

CF401	E-6
CF402	E-6
CN159	J-8
CN160	J-8
CN161	L-8
CN162	M-8
CN163	H-8
CN164	H-8
CN165	M-8
CN166	K-8
CN167	F-8
CN168	H-8
CN169	K-8
CN170	E-8
CV401	E-2
CV701	L-1
DL201	N-1
DL401	A-3
DL402	B-2
DL403	D-2
DL404	D-6
DL405	E-4
D1	G-3
D2	G-6
D3	G-6
D4	H-7
D5	F-3
D6	G-5
D7	H-5
D8	J-3
D9	J-4
D10	G-7
D11	N-8
D12	G-7
D13	F-5
D204	N-7
D205	M-2
D206	L-4
D207	L-4
D208	N-5
D209	N-5
D210	M-7
D212	L-6
D401	C-4
D402	C-4
D403	F-6
D404	D-6
D405	C-6
D805	M-1
FL1	F-1
FL2	K-3
FL3	K-3
FL201	N-3
FL401	C-8
FL402	B-5
FL403	A-6
FL404	C-2
IC1	F-2
IC2	G-6
IC3	G-4
IC4	K-2
IC5	K-5
IC6	J-6
IC7	F-6
IC8	F-7
IC201	N-2
IC202	N-6
IC203	N-4
IC204	N-5
IC401	A-8
IC402	C-6
IC403	B-4
IC404	B-6
IC405	A-4
IC406	A-4
IC407	A-3
IC408	C-2
IC409	C-3
IC410	C-3
IC411	D-3
IC412	D-5
IC413	E-7
LV1	J-4
L1	H-1
L2	F-2
L3	H-3
L4	H-7
L6	H-6
L7	H-7
L8	G-7
L9	F-4
L10	F-4
L11	G-5
L12	G-3
L13	H-3
L14	J-6
L15	J-1
L17	K-4
118	K-4
L19	K-5
L20	K-5
L21	J-3
L22	K-6
L24	G-7
L25	G-1
L26	G-1
L27	H-1
L28	H-1
L201	N-7
L202	N-7
L203	L-3
L204	M-2
L205	L-4
L206	L-4
L207	M-2
L208	L-5
L209	L-3
L210	M-5
L211	K-6
L212	L-8
L215	L-7
L216	L-7
L401	E-7
L402	D-8
L403	B-7
L404	E-7
L405	C-7
L406	D-7
L407	B-7
L408	B-7
L409	C-6
L410	C-7
L411	B-7
L412	A-5
L413	C-4
L414	A-3
L415	C-3
L416	C-4
L417	C-4
L418	E-5
L419	E-3
L420	E-5
L421	E-3
L422	E-2
L423	E-6
L424	D-6
L425	E-2
L426	D-7
L701	K-2
L702	L-2
Q1	F-3
Q2	G-2
Q3	H-1
Q4	J-1
Q5	H-1
Q6	H-2
Q7	H-2
Q8	H-6
Q9	G-7
Q10	G-6
Q11	G-6
Q12	F-5
Q13	K-5
Q14	G-3
Q15	H-4
Q16	H-4
Q17	H-4
Q18	H-4
Q19	H-4
Q20	H-5
Q21	H-4
Q22	J-4
Q23	J-4
Q24	J-3
Q25	J-4
Q26	G-4
Q27	J-5
Q28	J-5
Q29	J-5
Q30	J-5
Q31	J-6
Q32	J-1
Q33	K-4
Q34	K-7
Q35	K-7
Q36	G-7
Q37	K-7
Q38	J-7
Q41	G-1
Q42	G-1
Q43	F-4
Q44	F-5
Q45	J-1
Q201	N-6
Q202	N-6
Q203	N-4
Q204	N-2
Q205	N-2
Q206	N-1
Q207	M-6
Q208	L-3
Q209	M-4
Q210	M-6
Q211	N-4
Q212	M-5
Q213	M-5
Q214	L-6
Q215	M-6
Q216	L-6
Q217	L-6
Q218	L-7
Q222	M-7
Q223	L-7
Q401	E-8
Q402	D-8
Q403	C-8
Q404	B-8
Q405	D-7
Q406	D-7
Q407	C-7
Q408	C-6
Q409	B-5
Q410	B-5
Q411	C-4
Q412	B-6
Q413	A-7
Q414	A-6
Q415	A-5
Q416	A-5
Q417	B-4
Q418	B-3
Q419	B-3
Q420	B-3
Q421	B-3
Q422	B-2
Q423	C-2
Q424	C-2
Q425	D-4
Q426	C-4
Q427	C-3
Q428	E-6
Q429	E-5
Q430	D-5
Q431	E-3
Q432	E-3
Q433	E-3
Q434	E-3
Q435	E-3
Q436	E-2
Q437	D-2
Q438	E-2
Q439	E-6
Q440	D-7
Q441	E-4
Q442	E-6
Q701	K-1
Q702	K-2
Q801	L-1
Q802	M-1
Q803	M-1
RV1	H-7
RV2	H-4
RV3	H-4
RV4	G-3
RV5	J-4
RV6	H-3
RV7	J-4
RV8	J-2
RV9	J-7
RV10	H-6
RV12	H-1
RV13	H-1
RV201	M-3
RV202	L-4
RV203	L-4
RV401	C-7
RV402	B-5
RV403	B-4
RV404	B-6
RV405	C-6
RV406	A-5
RV407	A-5
RV408	A-2
RV409	C-3
RV410	C-4
RV411	E-5
RV412	D-5
RV413	E-5
RV414	E-3
TH1	H-3
TH401	D-7
TH402	A-6
TH403	B-4
T201	L-2
X201	M-2
X701	K-1



CE SOR

215	L-7	Q34	K-7	Q435	E-3
L216	L-7	Q35	K-7	Q436	E-2
L401	E-7	Q36	G-7	Q437	D-2
402	D-8	Q37	K-7	Q438	E-2
403	B-7	Q38	J-7	Q439	E-6
L404	E-7	Q41	G-1	Q440	D-7
L405	C-7	Q42	G-1	Q441	E-4
406	D-7	Q43	F-4	Q442	E-6
407	B-7	Q44	F-5	Q701	K-1
L408	B-7	Q45	J-1	Q702	K-2
L409	C-6	Q201	N-6	Q801	L-1
410	C-7	Q202	N-6	Q802	M-1
411	B-7	Q203	N-4	Q803	M-1
412	A-5	Q204	N-2		
L413	C-4	Q205	N-2	RV1	H-7
414	A-3	Q206	N-1	RV2	H-4
415	C-3	Q207	M-6	RV3	H-4
416	C-4	Q208	L-3	RV4	G-3
L417	C-4	Q209	M-4	RV5	J-4
418	E-5	Q210	M-6	RV6	H-3
419	E-3	Q211	N-4	RV7	J-4
420	E-5	Q212	M-5	RV8	J-2
L421	E-3	Q213	M-5	RV9	J-7
422	E-2	Q214	L-6	RV10	H-6
423	E-6	Q215	M-6	RV12	H-1
424	D-6	Q216	L-6	RV13	H-1
L425	E-2	Q217	L-6	RV201	M-3
426	D-7	Q218	L-7	RV202	L-4
701	K-2	Q222	M-7	RV203	L-4
702	L-2	Q223	L-7	RV401	C-7
		Q401	E-8	RV402	B-5
Q1	F-3	Q402	D-8	RV403	B-4
2	G-2	Q403	C-8	RV404	B-6
3	H-1	Q404	B-8	RV405	C-6
Q4	J-1	Q405	D-7	RV406	A-5
Q5	H-1	Q406	D-7	RV407	A-5
6	H-2	Q407	C-7	RV408	A-2
7	H-2	Q408	C-6	RV409	C-3
Q8	H-6	Q409	B-5	RV410	C-4
Q9	G-7	Q410	B-5	RV411	E-5
10	G-6	Q411	C-4	RV412	D-5
11	G-6	Q412	B-6	RV413	E-5
Q12	F-5	Q413	A-7	RV414	E-3
Q13	K-5	Q414	A-6		
14	G-3	Q415	A-5	TH1	H-3
15	H-4	Q416	A-5	TH401	D-7
Q16	H-4	Q417	B-4	TH402	A-6
Q17	H-4	Q418	B-3	TH403	B-4
18	H-4	Q419	B-3		
19	H-4	Q420	B-3	T201	L-2
20	H-5	Q421	B-3		
Q21	H-4	Q422	B-2	X201	M-2
22	J-4	Q423	C-2	X701	K-1
23	J-4	Q424	C-2		
24	J-3	Q425	D-4		
Q25	J-4	Q426	C-4		
26	G-4	Q427	C-3		
27	J-5	Q428	E-6		
28	J-5	Q429	E-5		
Q29	J-5	Q430	D-5		
30	J-5	Q431	E-3		
31	J-6	Q432	E-3		
32	J-1	Q433	E-3		
Q33	K-4	Q434	E-3		


A
B
C
D
E
F
G
H
J
K
L
M
N
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3
4
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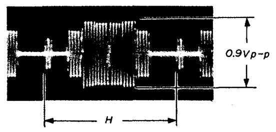
6
7
8
SONY MADE IN JAPAN
LOT NO.
MD-59 1-629-563-11
CHROMA BALANCE
CHROMA DET
PHASE
FREQ. RESPONSE
Y PHASE EQ (SP)
Y PHASE EQ (CONV)
REC HF BALANCE
WHITE CLIP (SP)
SYNC TIP CARRIER
SUBCARRIER TRAP
DARK CLIP
MOD BAL
REF 3.58MHz FREQ
REC CHROMA LEVEL
APC DC
REC ACC
CARRIER LEAK CANCEL
1H DELAY CCD LEVEL
1H DELAY CCD PHASE
2H DELAY CCD LEVEL
2H DELAY CCD PHASE
CCD DC BIAS
CLOCK PHASE
CCD DC BIAS
Y LEVEL
V/C CANCEL LEVEL
V/C CANCEL PHASE
VIDEO METER
FM DEVIATION
TRACKING METER
DIP

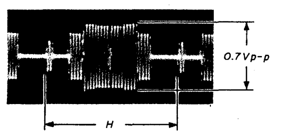
MD-59

—COMPONENT SIDE—
1-629-563-11
VO-9850

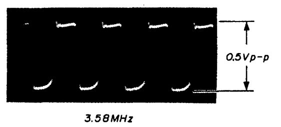
① TP201 REC



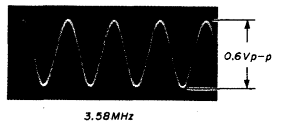
② TP210 REC



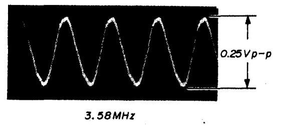
③ TP208 REC



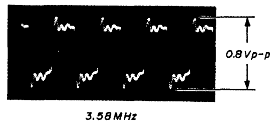
PB



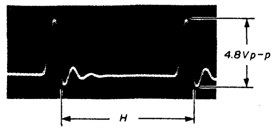
④ TP202 REC



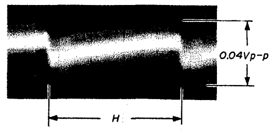
⑤ TP203 REC



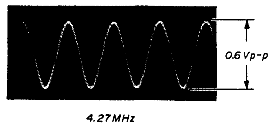
⑥ TP204 REC



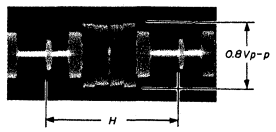
⑦ TP205 REC



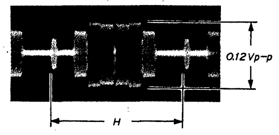
⑧ TP206 REC



⑨ TP212 REC



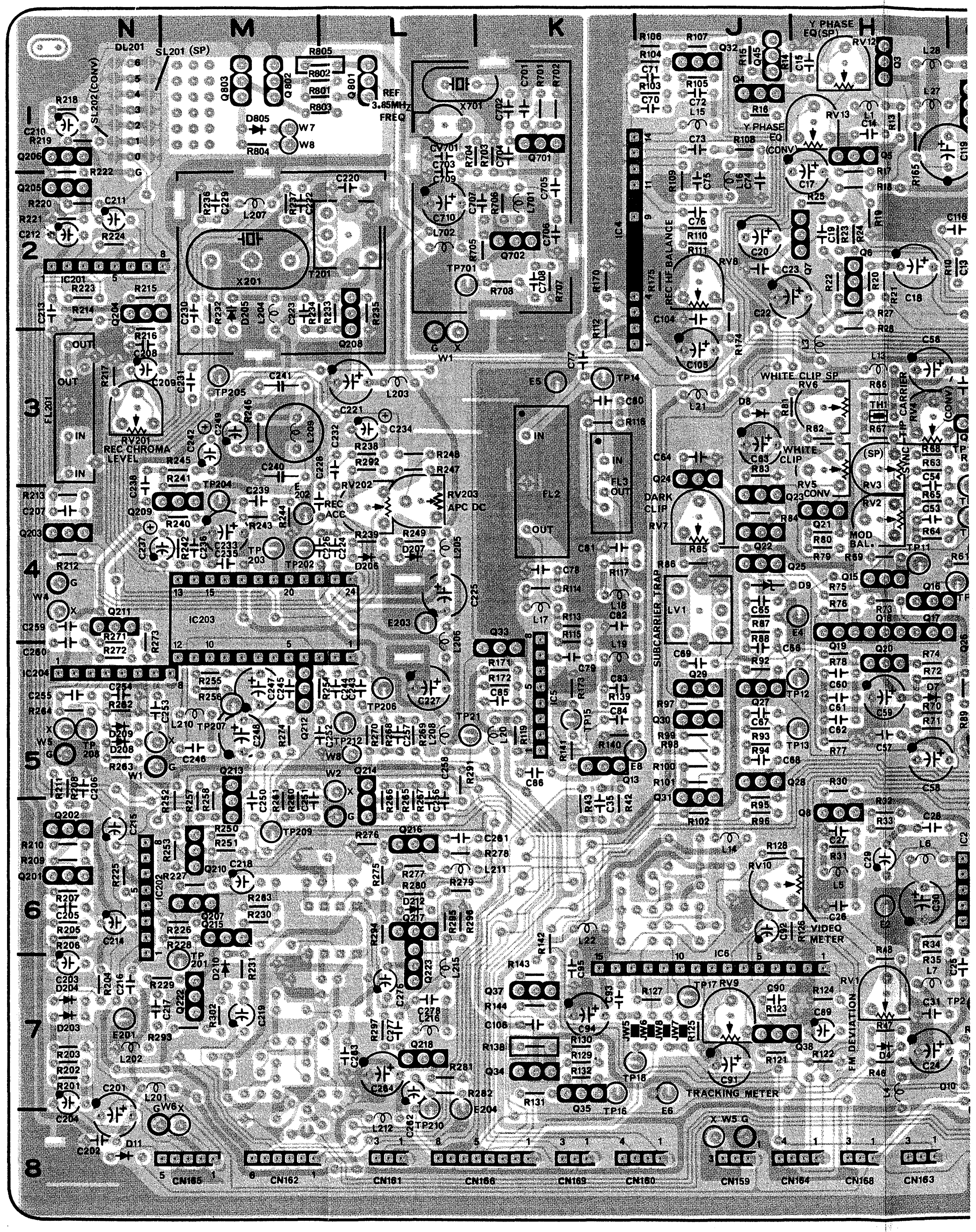
⑩ TP209 REC

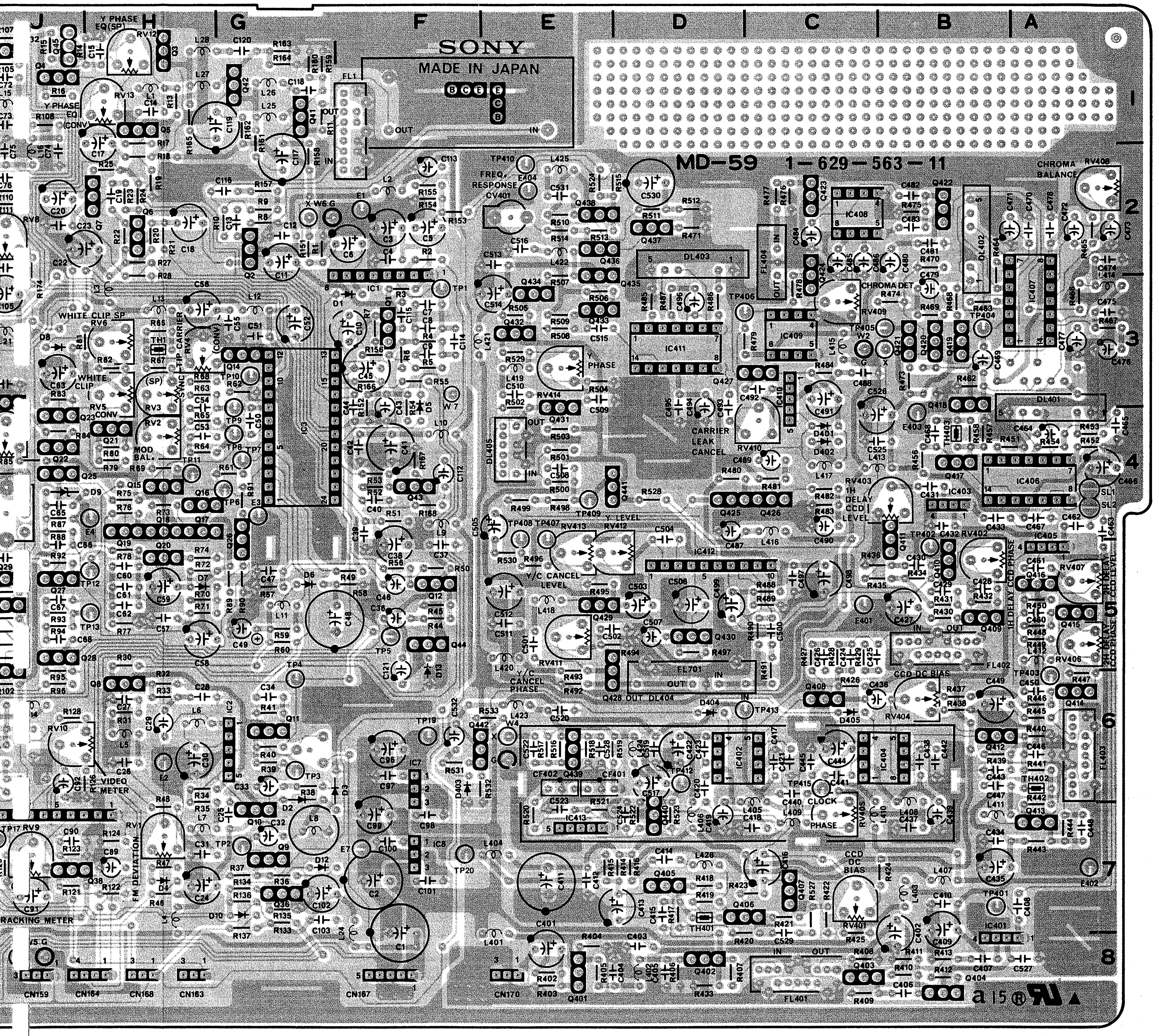


MD-59 (2/3): C REC PROCESSOR

MD-59 (1-629-563-11) S

E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2

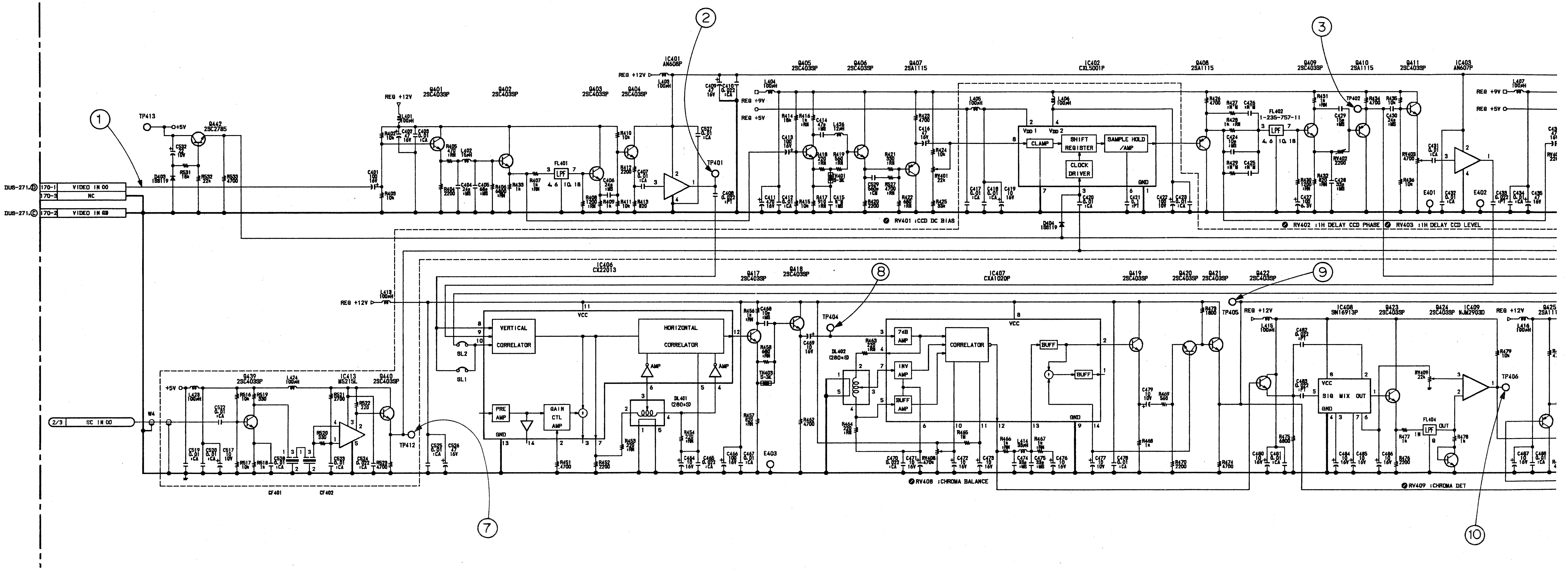

N
M
L
K
J
H
1
2
3
4
5
6
7
8
REC CHROMA LEVEL
RV203 APC DC
Y PHASE EQ(SP)
Y PHASE EQ (CONV)
REC HF BALANCE
WHITE CLIP SP
WHITE CLIP
DARK CLIP
MOD BAL
SUBCARRIER TRAP
VIDEO METER
TRACKING METER
FM DEVIATION
REF 3.58MHz FREQ
IC201
IC202
IC203
IC204
IC4
IC5
IC6
X201
X701
FL2
FL3
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN164
CN168
CN163

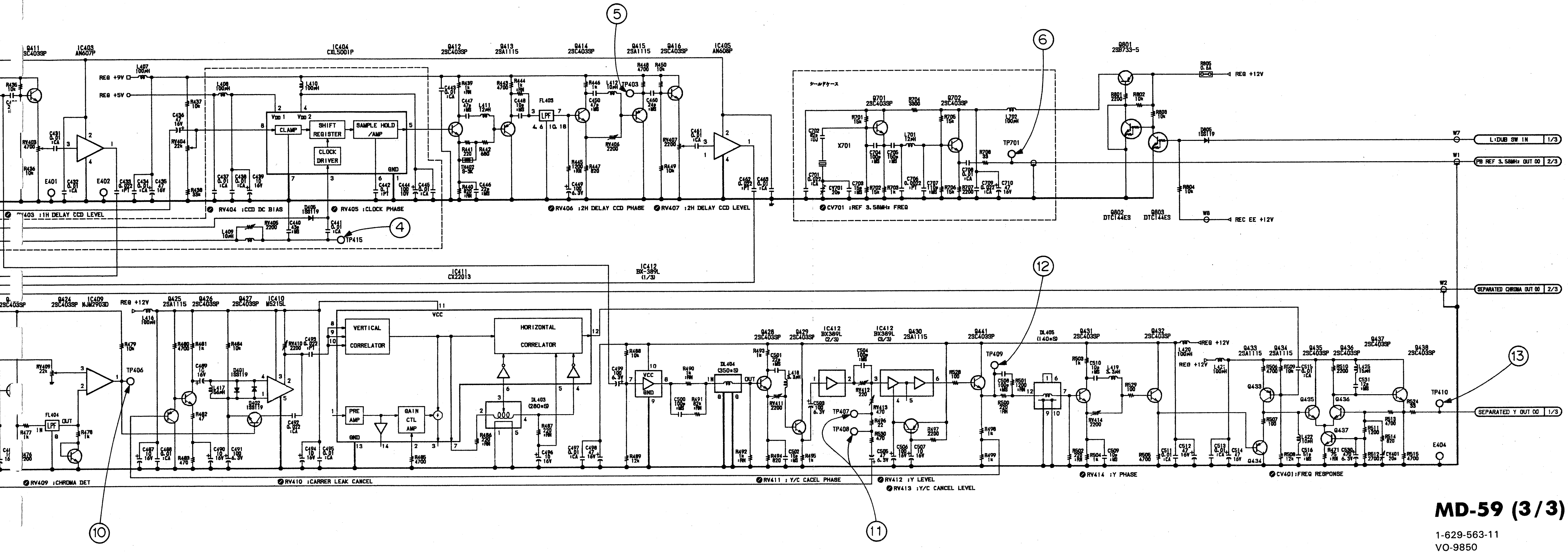

SONY
MADE IN JAPAN
MD-59 1-629-563-11
J
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
CHROMA BALANCE
CHROMA DET
CARRIER LEAK CANCEL
Y/C CANCEL LEVEL
Y/C CANCEL PHASE
Y LEVEL
CCD DC BIAS
CLOCK PHASE
1H DELAY CCD LEVEL
WHITE CLIP SP
VIDEO METER
TRACKING METER
FM DEVIATION
CN159
CN164
CN168
CN163
CN167
CN170

MD-59

—SOLDERING SIDE—
1-629-563-11
VO-9850

MD-59 (3/3): Y/C SEPARATOR

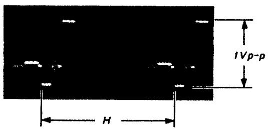

①
②
③
⑦
⑧
⑨
⑩
DUS-271
VIDEO IN
NC
SC IN
TP401
TP402
TP404
TP405
TP406
TP412
TP413
IC401 AN608P
IC402 CXL5001P
IC403 AN607P
IC406 CX22013
IC407 CXA1020P
IC408 SN16913P
IC409 NJM2903D
IC413 M5215L
REG +12V
REG +9V
REG +5V
CLAMP
SHIFT REGISTER
SAMPLE HOLD /AMP
CLOCK DRIVER
VERTICAL CORRELATOR
HORIZONTAL CORRELATOR
PRE AMP
GAIN CTL AMP
CORRELATOR
INV AMP
BUFF AMP
BUFF
SIG MIX OUT
LPF
RV401 :CCD DC BIAS
RV402 :1H DELAY CCD PHASE
RV403 :1H DELAY CCD LEVEL
RV408 :CHROMA BALANCE
RV409 :CHROMA DET


Q411 SC403SP
IC403 AN607P
IC404 CXL5001P
Q412 2SC403SP
Q413 2SA1115
Q414 2SC403SP
Q415 2SA1115
Q416 2SC403SP
IC405 AN608P
REG +9V
REG +5V
VDD 1
VDD 2
CLAMP
SHIFT REGISTER
SAMPLE HOLD /AMP
CLOCK DRIVER
GND
FL403
LPF
TP403
TP415
E401
E402
RV403 :1H DELAY CCD LEVEL
RV404 :CCD DC BIAS
RV405 :CLOCK PHASE
RV406 :2H DELAY CCD PHASE
RV407 :2H DELAY CCD LEVEL
シールドケース
Q701 2SC403SP
Q702 2SC403SP
X701
TP701
CV701 :REF 3.58MHz FREQ
Q801 2SB733-5
Q802 DTC144ES
Q803 DTC144ES
D805 1SS119
REG +12V
REC EE +12V
W7
W1
W8
W2
L:DUB SW IN 1/3
PB REF 3.58MHz OUT 00 2/3
SEPARATED CHROMA OUT 00 2/3
SEPARATED Y OUT 00 1/3
IC411 CX22013
IC412 BX-389L (1/3)
Q424 2SC403SP
IC409 NJM2903D
Q425 2SA1115
Q426 2SC403SP
Q427 2SC403SP
IC410 M5215L
FL404
TP406
VCC
VERTICAL CORRELATOR
HORIZONTAL CORRELATOR
PRE AMP
GAIN CTL AMP
DL403 (280nS)
DL404 (350nS)
Q428 2SC403SP
Q429 2SC403SP
IC412 BX389L (2/3)
IC412 BX389L (3/3)
Q430 2SA1115
Q441 2SC403SP
DL405 (140nS)
Q431 2SC403SP
Q432 2SC403SP
Q433 2SA1115
Q434 2SA1115
Q435 2SC403SP
Q436 2SC403SP
Q437 2SC403SP
Q438 2SC403SP
TP407
TP408
TP409
TP410
E404
RV409 :CHROMA DET
RV410 :CARRER LEAK CANCEL
RV411 : Y/C CACEL PHASE
RV412 :Y LEVEL
RV413 :Y/C CANCEL LEVEL
RV414 :Y PHASE
CV401:FREQ RESPONSE
④
⑤
⑥
⑩
⑪
⑫
⑬

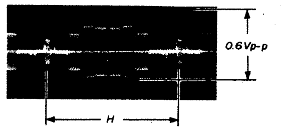
MD-59 (3/3)

1-629-563-11
VO-9850

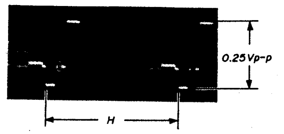
① CN170-1 REC/PB



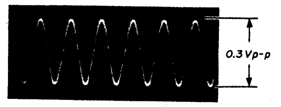
② TP401 REC/PB



③ TP402 REC/PB

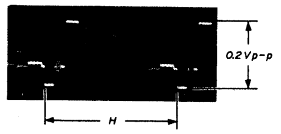


④ TP415 REC/PB

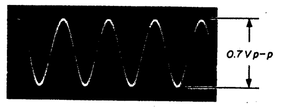


10.74MHz

⑤ TP403 REC/PB

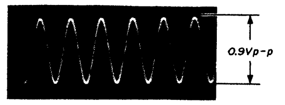


⑥ TP701 REC/PB



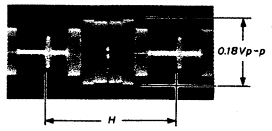
3.58MHz

⑦ TP412 REC/PB

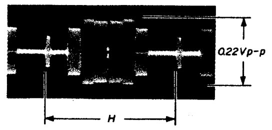


10.74MHz

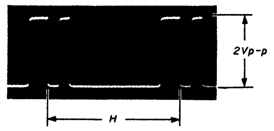
⑧ TP404 REC/PB



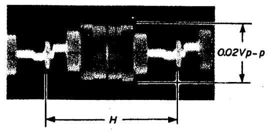
⑨ TP405 REC/PB



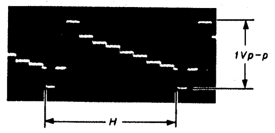
⑩ TP406 REC/PB



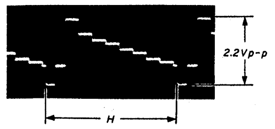
⑪ TP407 TP408 REC/PB



⑫ TP409 REC/PB



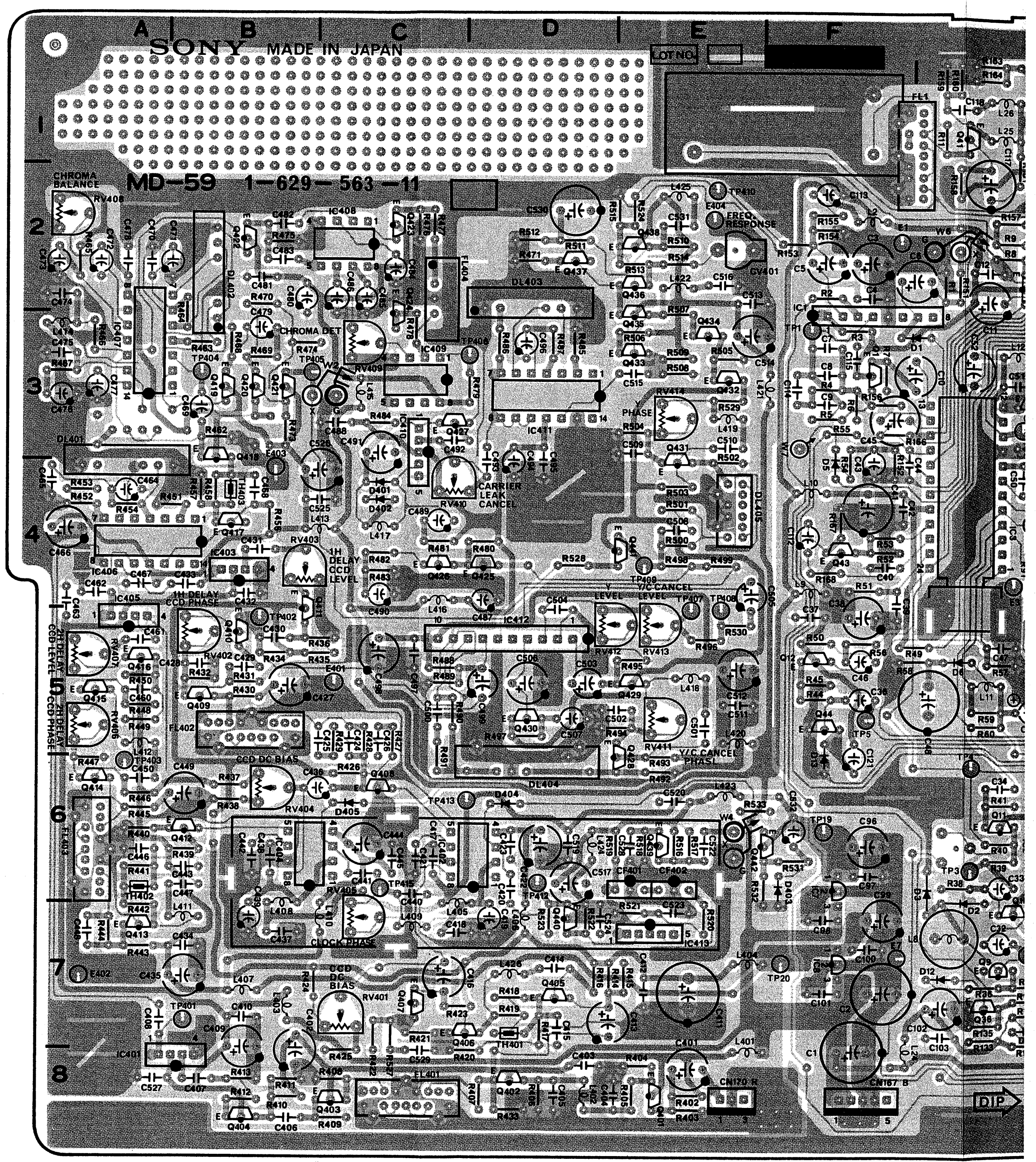
⑬ TP410 REC/PB



MD-59 (3/3): Y/C SEPARATOR

MD-59 (1-629-563-11) C

CF401	E-6	IC2	G-6	L215	L-7	Q34	K-7	Q435	E-3				
CF402	E-6	IC3	G-4	L216	L-7	Q35	K-7	Q436	E-2				
		IC4	K-2	L401	E-7	Q36	G-7	Q437	D-2				
CN159	J-8	IC5	K-5	L402	D-8	Q37	K-7	Q438	E-2				
CN160	J-8	IC6	J-6	L403	B-7	Q38	J-7	Q439	E-6				
CN161	L-8	IC7	F-6	L404	E-7	Q41	G-1	Q440	D-7				
CN162	M-8	IC8	F-7	L405	C-7	Q42	G-1	Q441	E-4				
CN163	H-8	IC201	N-2	L406	D-7	Q43	F-4	Q442	E-6				
CN164	H-8	IC202	N-6	L407	B-7	Q44	F-5	Q701	K-1				
CN165	M-8	IC203	N-4	L408	B-7	Q45	J-1	Q702	K-2				
CN166	K-8	IC204	N-5	L409	C-6	Q201	N-6	Q801	L-1				
CN167	F-8	IC401	A-8	L410	C-7	Q202	N-6	Q802	M-1				
CN168	H-8	IC402	C-6	L411	B-7	Q203	N-4	Q803	M-1				
CN169	K-8	IC403	B-4	L412	A-5	Q204	N-2						
CN170	E-8	IC404	B-6	L413	C-4	Q205	N-2	RV1	H-7				
		IC405	A-4	L414	A-3	Q206	N-1	RV2	H-4				
CV401	E-2	IC406	A-4	L415	C-3	Q207	M-6	RV3	H-4				
CV701	L-1	IC407	A-3	L416	C-4	Q208	L-3	RV4	G-3				
		IC408	C-2	L417	C-4	Q209	M-4	RV5	J-4				
DL201	N-1	IC409	C-3	L418	E-5	Q210	M-6	RV6	H-3				
DL401	A-3	IC410	C-3	L419	E-3	Q211	N-4	RV7	J-4				
DL402	B-2	IC411	D-3	L420	E-5	Q212	M-5	RV8	J-2				
DL403	D-2	IC412	D-5	L421	E-3	Q213	M-5	RV9	J-7				
DL404	D-6	IC413	E-7	L422	E-2	Q214	L-6	RV10	H-6				
DL405	E-4			L423	E-6	Q215	M-6	RV12	H-1				
		LV1	J-4	L424	D-6	Q216	L-6	RV13	H-1				
D1	G-3			L425	E-2	Q217	L-6	RV201	M-3				
D2	G-6	L1	H-1	L426	D-7	Q218	L-7	RV202	L-4				
D3	G-6	L2	F-2	L701	K-2	Q222	M-7	RV203	L-4				
D4	H-7	L3	H-3	L702	L-2	Q223	L-7	RV401	C-7				
D5	F-3	L4	H-7			Q401	E-8	RV402	B-5				
D6	G-5	L6	H-6	Q1	F-3	Q402	D-8	RV403	B-4				
D7	H-5	L7	H-7	Q2	G-2	Q403	C-8	RV404	B-6				
D8	J-3	L8	G-7	Q3	H-1	Q404	B-8	RV405	C-6				
D9	J-4	L9	F-4	Q4	J-1	Q405	D-7	RV406	A-5				
D10	G-7	L10	F-4	Q5	H-1	Q406	D-7	RV407	A-5				
D11	N-8	L11	G-5	Q6	H-2	Q407	C-7	RV408	A-2				
D12	G-7	L12	G-3	Q7	H-2	Q408	C-6	RV409	C-3				
D13	F-5	L13	H-3	Q8	H-6	Q409	B-5	RV410	C-4				
D204	N-7	L14	J-6	Q9	G-7	Q410	B-5	RV411	E-5				
D205	M-2	L15	J-1	Q10	G-6	Q411	C-4	RV412	D-5				
D206	L-4	L17	K-4	Q11	G-6	Q412	B-6	RV413	E-5				
D207	L-4	118	K-4	Q12	F-5	Q413	A-7	RV414	E-3				
D208	N-5	L19	K-5	Q13	K-5	Q414	A-6						
D209	N-5	L20	K-5	Q14	G-3	Q415	A-5	TH1	H-3				
D210	M-7	L21	J-3	Q15	H-4	Q416	A-5	TH401	D-7				
D212	L-6	L22	K-6	Q16	H-4	Q417	B-4	TH402	A-6				
D401	C-4	L24	G-7	Q17	H-4	Q418	B-3	TH403	B-4				
D402	C-4	L25	G-1	Q18	H-4	Q419	B-3						
D403	F-6	L26	G-1	Q19	H-4	Q420	B-3	T201	L-2				
D404	D-6	L27	H-1	Q20	H-5	Q421	B-3						
D405	C-6	L28	H-1	Q21	H-4	Q422	B-2	X201	M-2				
D805	M-1	L201	N-7	Q22	J-4	Q423	C-2	X701	K-1				
		L202	N-7	Q23	J-4	Q424	C-2						
FL1	F-1	L203	L-3	Q24	J-3	Q425	D-4						
FL2	K-3	L204	M-2	Q25	J-4	Q426	C-4						
FL3	K-3	L205	L-4	Q26	G-4	Q427	C-3						
FL201	N-3	L206	L-4	Q27	J-5	Q428	E-6						
FL401	C-8	L207	M-2	Q28	J-5	Q429	E-5						
FL402	B-5	L208	L-5	Q29	J-5	Q430	D-5						
FL403	A-6	L209	L-3	Q30	J-5	Q431	E-3						
FL404	C-2	L210	M-5	Q31	J-6	Q432	E-3						
		L211	K-6	Q32	J-1	Q433	E-3						
IC1	F-2	L212	L-8	Q33	K-4	Q434	E-3						



[illegible]	Q34	K-7	Q435	E-3
L-7	Q35	K-7	Q436	E-2
E-7	Q36	G-7	Q437	D-2
[illegible]	Q37	K-7	Q438	E-2
[illegible]	Q38	J-7	Q439	E-6
E-7	Q41	G-1	Q440	D-7
C-7	Q42	G-1	Q441	E-4
[illegible]	Q43	F-4	Q442	E-6
[illegible]	Q44	F-5	Q701	K-1
B-7	Q45	J-1	Q702	K-2
C-6	Q201	N-6	Q801	L-1
[illegible]	Q202	N-6	Q802	M-1
[illegible]	Q203	N-4	Q803	M-1
A-5	Q204	N-2		
C-4	Q205	N-2	RV1	H-7
[illegible]	Q206	N-1	RV2	H-4
[illegible]	Q207	M-6	RV3	H-4
C-4	Q208	L-3	RV4	G-3
C-4	Q209	M-4	RV5	J-4
[illegible]	Q210	M-6	RV6	H-3
[illegible]	Q211	N-4	RV7	J-4
[illegible]	Q212	M-5	RV8	J-2
E-3	Q213	M-5	RV9	J-7
[illegible]	Q214	L-6	RV10	H-6
[illegible]	Q215	M-6	RV12	H-1
[illegible]	Q216	L-6	RV13	H-1
E-2	Q217	L-6	RV201	M-3
[illegible]	Q218	L-7	RV202	L-4
[illegible]	Q222	M-7	RV203	L-4
[illegible]	Q223	L-7	RV401	C-7
	Q401	E-8	RV402	B-5
[illegible]	Q402	D-8	RV403	B-4
[illegible]	Q403	C-8	RV404	B-6
[illegible]	Q404	B-8	RV405	C-6
J-1	Q405	D-7	RV406	A-5
[illegible]	Q406	D-7	RV407	A-5
[illegible]	Q407	C-7	RV408	A-2
[illegible]	Q408	C-6	RV409	C-3
H-6	Q409	B-5	RV410	C-4
G-7	Q410	B-5	RV411	E-5
[illegible]	Q411	C-4	RV412	D-5
[illegible]	Q412	B-6	RV413	E-5
F-5	Q413	A-7	RV414	E-3
K-5	Q414	A-6		
[illegible]	Q415	A-5	TH1	H-3
[illegible]	Q416	A-5	TH401	D-7
H-4	Q417	B-4	TH402	A-6
H-4	Q418	B-3	TH403	B-4
[illegible]	Q419	B-3		
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H-5	Q421	B-3		
H-4	Q422	B-2	X201	M-2
[illegible]	Q423	C-2	X701	K-1
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J-3	Q425	D-4		
J-4	Q426	C-4		
[illegible]	Q427	C-3		
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J-5	Q429	E-5		
J-5	Q430	D-5		
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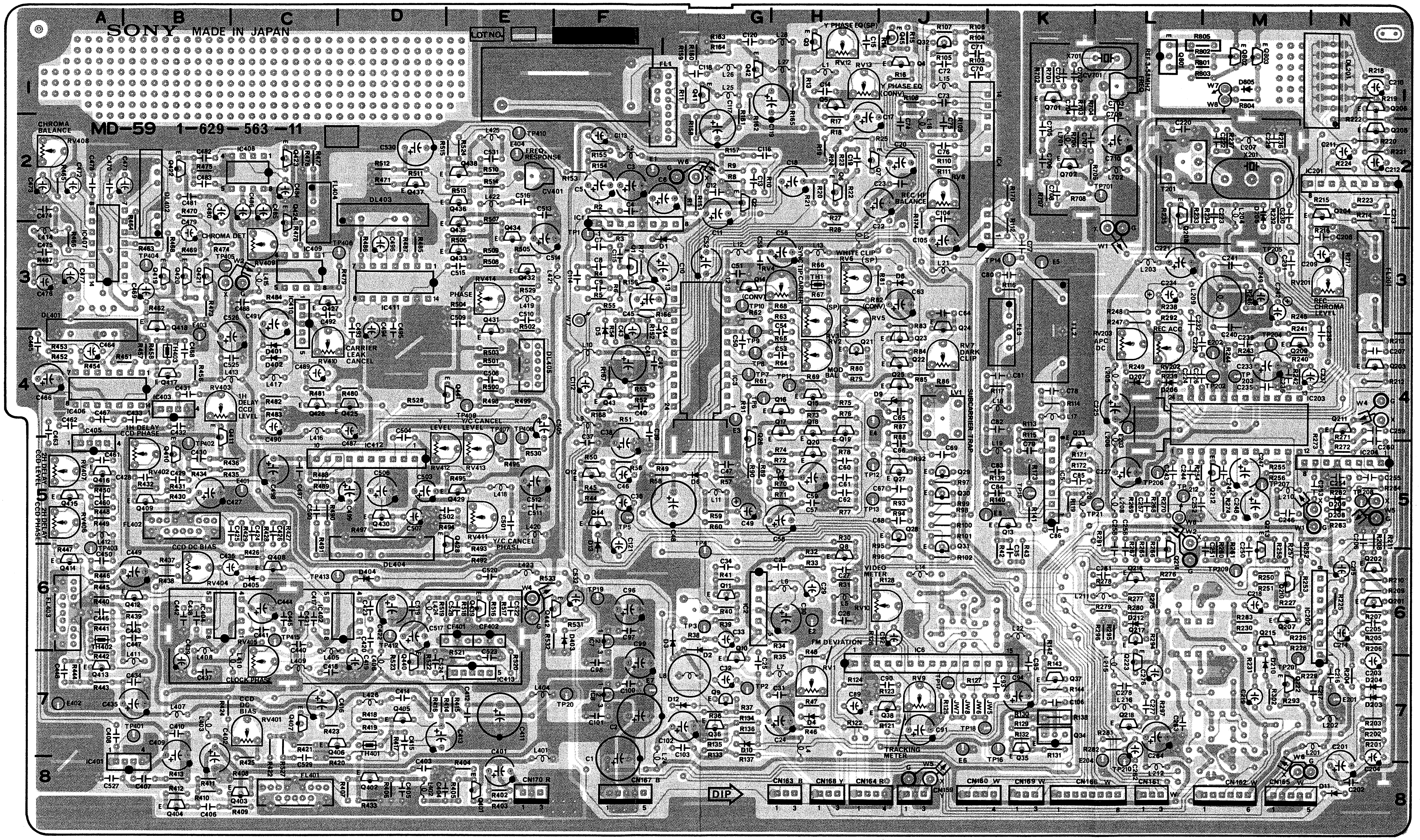
K-4	Q434	E-3		


A
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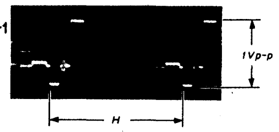
SONY MADE IN JAPAN
LOT NO.
MD-59 1-629-563-11
CHROMA BALANCE
CHROMA DET
CARRIER LEAK CANCEL
1H DELAY CCD LEVEL
1H DELAY CCD PHASE
2H DELAY CCD LEVEL
2H DELAY CCD PHASE
CCD DC BIAS
CLOCK PHASE
PHASE
FREQ. RESPONSE
Y LEVEL
V/C CANCEL LEVEL
V/C CANCEL PHASE
Y PHASE EQ (SP)
Y PHASE EQ (CONV)
REC HF BALANCE
WHITE CLIP
DARK CLIP
MOD BAL
SUBCARRIER TRAP
VIDEO METER
FM DEVIATION
TRACKING METER
REC ACC
APC DC
REC CHROMA LEVEL
REF 3.58MHz FREQ
DIP
CN170 R
CN167 B
CN163 B
CN168 Y
CN164 R
CN159
CN160 W
CN169 W
CN166 W
CN161
CN162 W
CN165 W

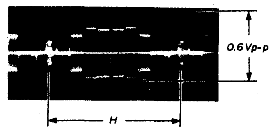
MD-59

—COMPONENT SIDE—
1-629-563-11
VO-9850

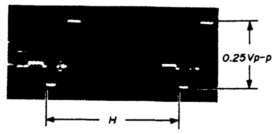
① CN170-1 REC/PB



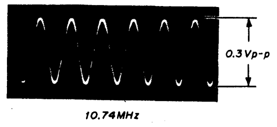
② TP401 REC/PB



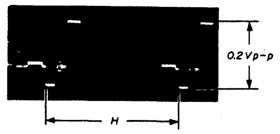
③ TP402 REC/PB



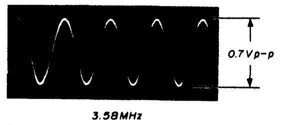
④ TP415 REC/PB



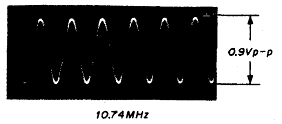
⑤ TP403 REC/PB



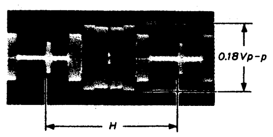
⑥ TP701 REC/PB



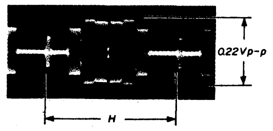
⑦ TP412 REC/PB



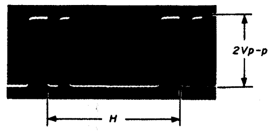
⑧ TP404 REC/PB



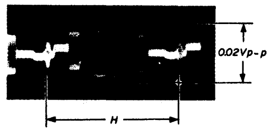
⑨ TP405 REC/PB



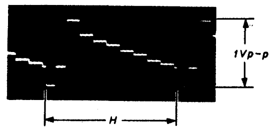
⑩ TP406 REC/PB



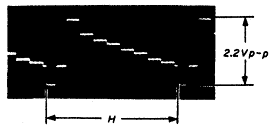
⑪ TP407 TP408 REC/PB



⑫ TP409 REC/PB



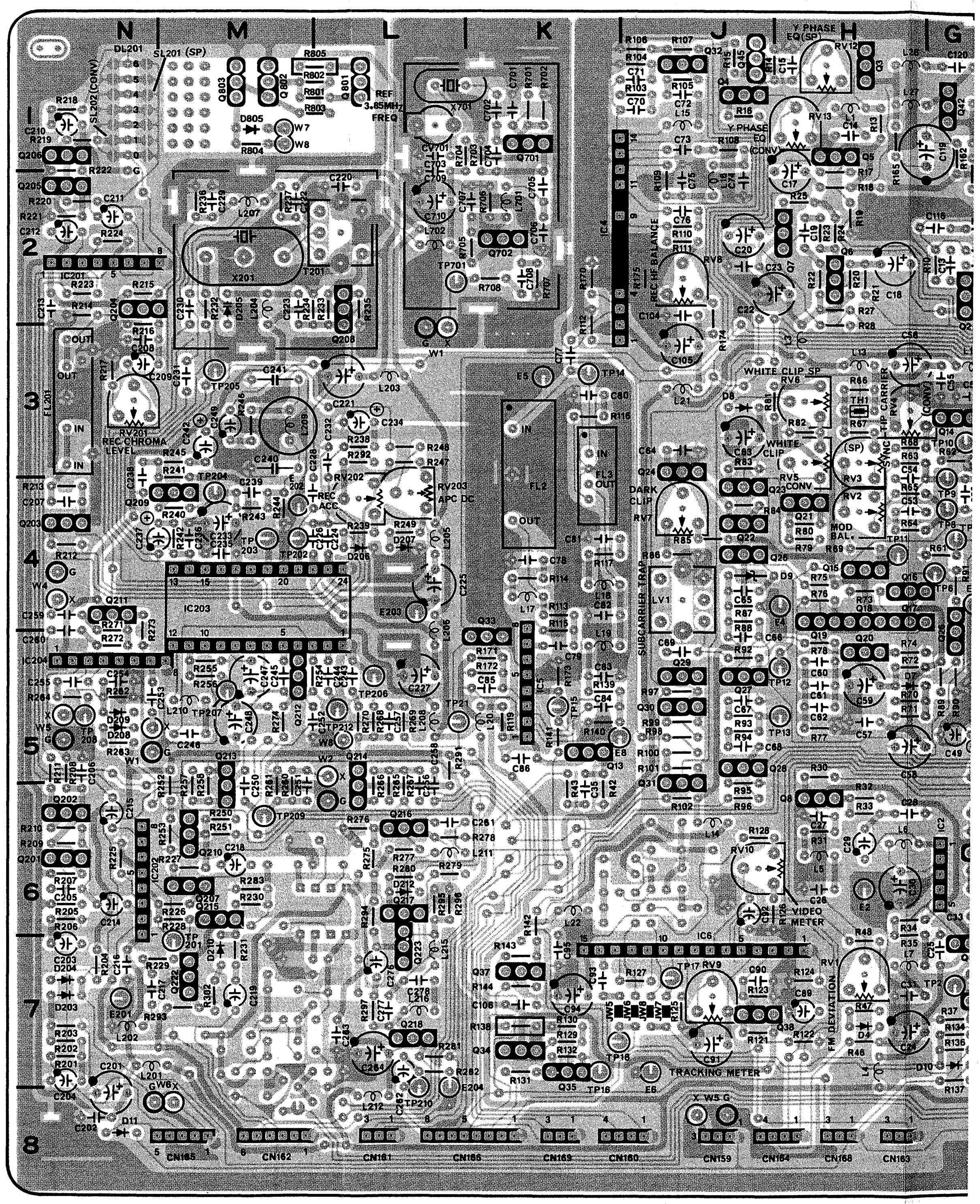
⑬ TP410 REC/PB



MD-59 (3/3): Y/C SEPARATOR

MD-59 (1-629-563-11) S

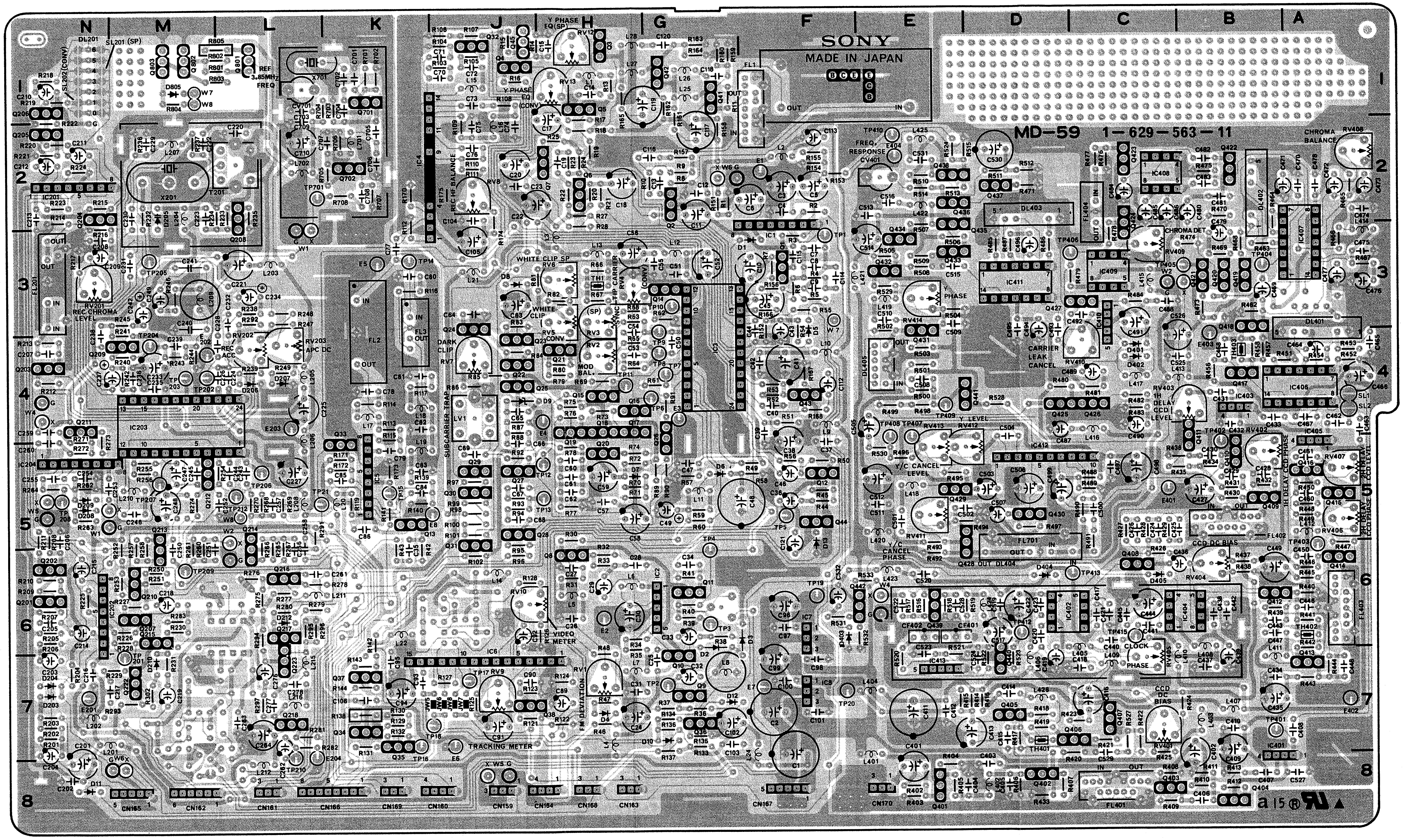
E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2


N
M
L
K
J
H
G
1
2
3
4
5
6
7
8
DL201
SL201 (SP)
SL202 (CONV)
REF 3.85MHz FREQ
X701
X201
T201
IC4
IC201
IC202
IC203
IC204
IC5
IC6
FL201
FL1
FL2
FL3
REC CHROMA LEVEL
RV201
RV202
RV203 APC DC
ACC
REC Y/C BALANCE
Y PHASE EQ (SP)
Y PHASE EQ (CONV)
WHITE CLIP SP
WHITE CLIP
DARK CLIP
SUBCARRIER TRAP
MOD BAL
VIDEO E METER
TRACKING METER
FM DEVIATION
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN164
CN168
CN163

MD-59 (3/3): Y/C SEPARATOR

MD-59 (1-629-563-11) S

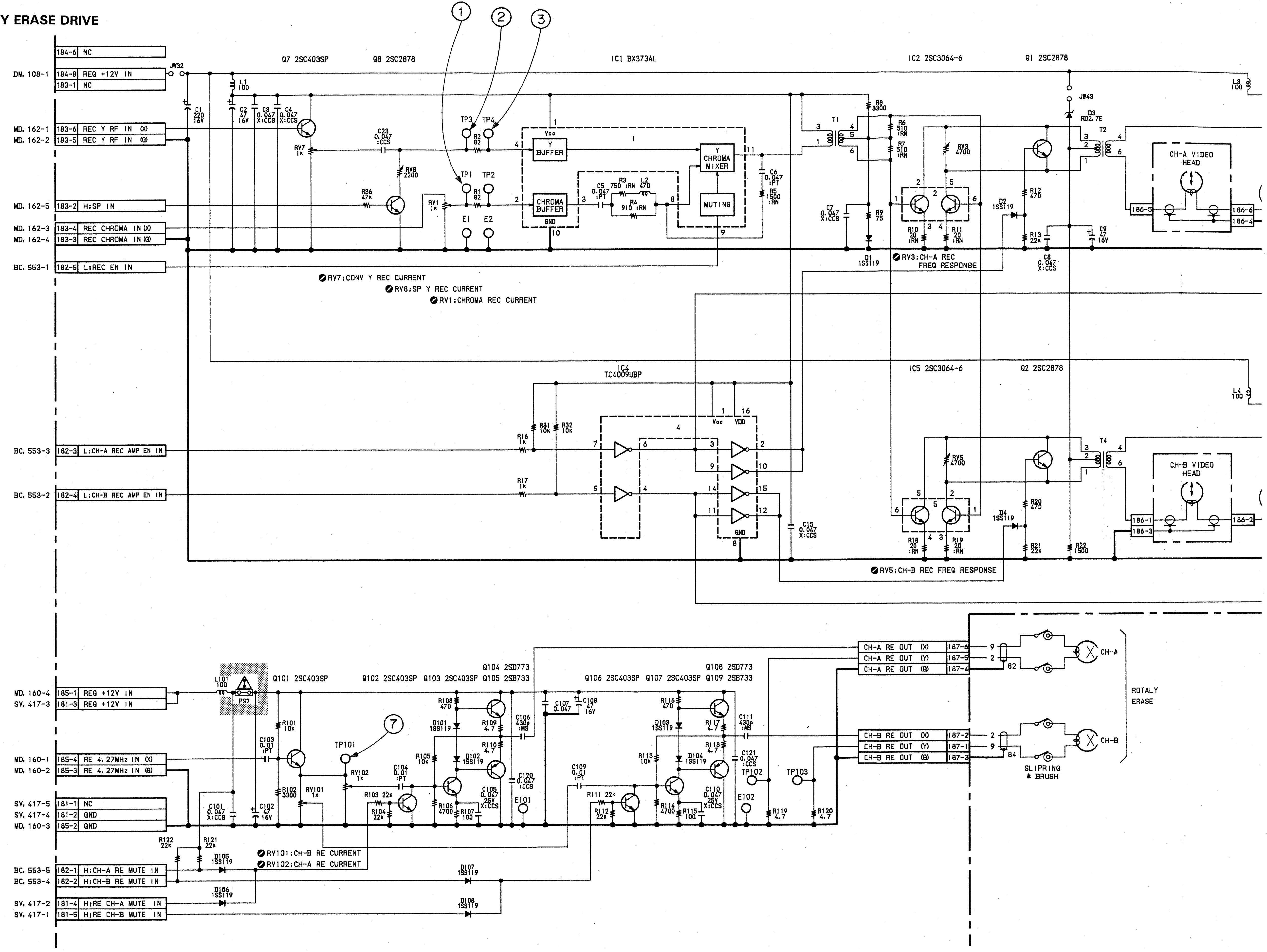
E1	F-2
E2	H-6
E3	G-4
E4	H-4
E5	K-3
E6	J-8
E7	F-7
E8	K-5
E201	N-7
E202	M-4
E203	L-4
E204	K-8
E401	C-5
E402	A-7
E403	B-4
E404	E-2
TP1	F-3
TP2	G-7
TP3	G-6
TP4	G-5
TP5	F-5
TP6	G-4
TP7	G-4
TP8	G-4
TP9	G-4
TP10	G-3
TP11	H-4
TP12	H-5
TP13	H-5
TP14	K-3
TP15	K-5
TP16	K-8
TP17	J-7
TP18	J-7
TP19	F-6
TP20	F-7
TP21	L-5
TP201	M-7
TP202	M-4
TP203	M-4
TP204	M-4
TP205	M-3
TP206	L-5
TP207	M-5
TP208	N-5
TP209	M-6
TP210	L-8
TP212	L-5
TP401	B-7
TP402	B-4
TP403	A-6
TP404	B-3
TP405	C-3
TP406	D-3
TP407	E-4
TP408	E-4
TP409	E-4
TP410	E-2
TP412	D-6
TP413	C-6
TP415	C-6
TP701	L-2

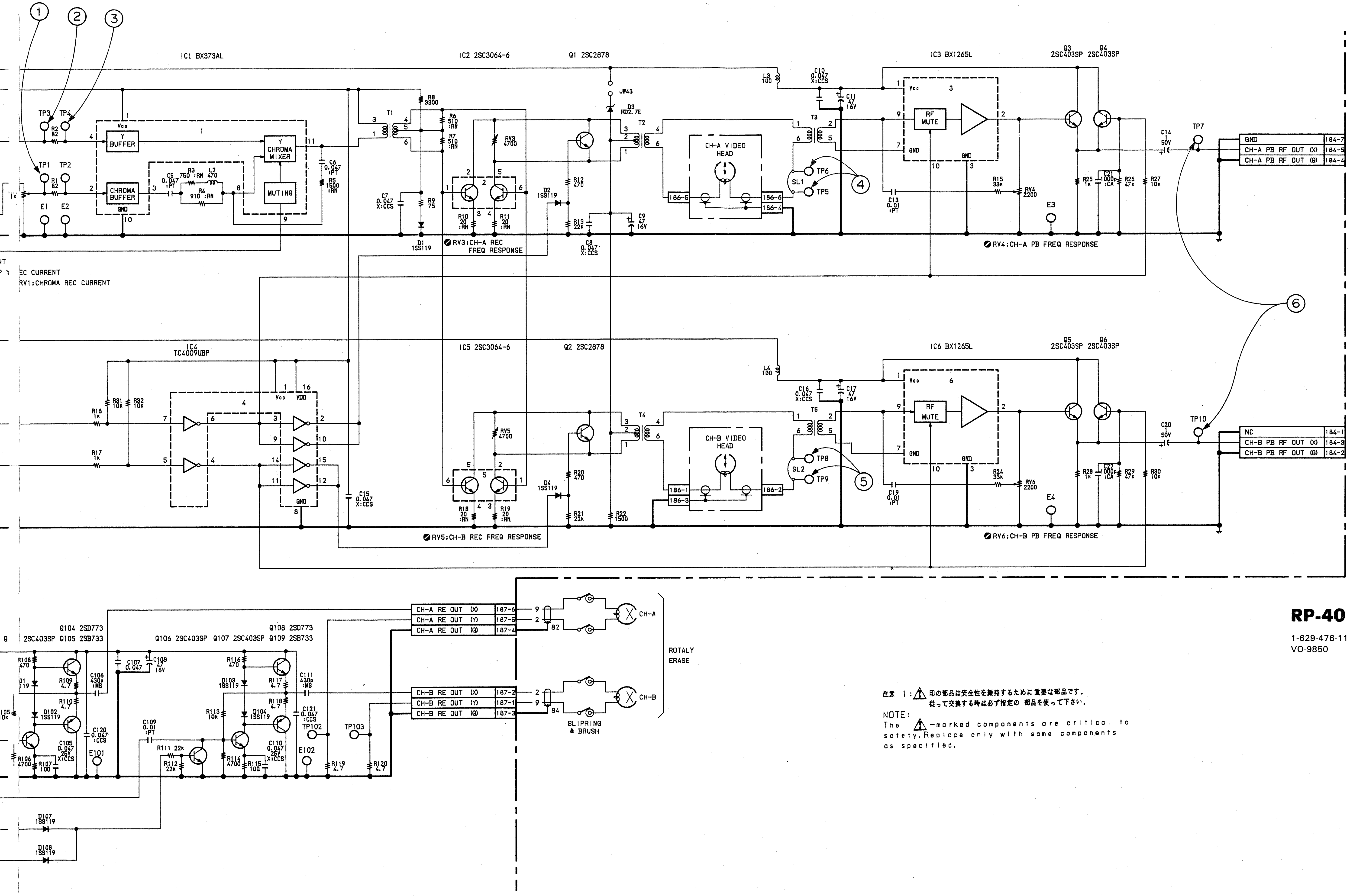

N
M
L
K
J
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
SONY
MADE IN JAPAN
MD-59 1-629-563-11
REC CHROMA LEVEL
REC ACC
APC DC
REC HF BALANCE
WHITE CLIP SP
WHITE CLIP
DARK CLIP
SUBCARRIER TRAP
MOD BAL.
NC TIP CARRIER
Y PHASE EQ(SP)
Y PHASE EQ (CONV)
VIDEO METER
FM DEVIATION
TRACKING METER
FREQ. RESPONSE
CHROMA BALANCE
CHROMA DET
Y PHASE
CARRIER LEAK CANCEL
1H DELAY CCD LEVEL
Y LEVEL
Y/C CANCEL LEVEL
Y/C CANCEL PHASE
CCD DC BIAS
CLOCK PHASE
CN165
CN162
CN161
CN166
CN169
CN160
CN159
CN164
CN168
CN163
CN167
CN170

MD-59

—SOLDERING SIDE—
1-629-563-11
VO-9850

RP-40: REC/PB AMPLIFIER, ROTARY ERASE DRIVE


①
②
③
⑦
DM, 108-1
MD, 162-1
MD, 162-2
MD, 162-5
MD, 162-3
MD, 162-4
BC, 553-1
BC, 553-3
BC, 553-2
MD, 160-4
SV, 417-3
MD, 160-1
MD, 160-2
SV, 417-5
SV, 417-4
MD, 160-3
BC, 553-5
BC, 553-4
SV, 417-2
SV, 417-1
184-6 NC
184-8 REG +12V IN
183-1 NC
183-6 REC Y RF IN (X)
183-5 REC Y RF IN (G)
183-2 H:SP IN
183-4 REC CHROMA IN (X)
183-3 REC CHROMA IN (G)
182-5 L:REC EN IN
182-3 L:CH-A REC AMP EN IN
182-4 L:CH-B REC AMP EN IN
185-1 REG +12V IN
181-3 REG +12V IN
185-4 RE 4.27MHz IN (X)
185-3 RE 4.27MHz IN (G)
181-1 NC
181-2 GND
185-2 GND
182-1 H:CH-A RE MUTE IN
182-2 H:CH-B RE MUTE IN
181-4 H:RE CH-A MUTE IN
181-5 H:RE CH-B MUTE IN
JW32
Q7 2SC403SP
Q8 2SC2878
IC1 BX373AL
IC2 2SC3064-6
Q1 2SC2878
IC4 TC4009UBP
IC5 2SC3064-6
Q2 2SC2878
Y BUFFER
CHROMA BUFFER
Y CHROMA MIXER
MUTING
Vcc
GND
VDD
TP1
TP2
TP3
TP4
E1
E2
T1
T2
T4
JW43
D3 RD2.7E
D1 1SS119
D2 1SS119
D4 1SS119
CH-A VIDEO HEAD
CH-B VIDEO HEAD
186-5
186-6
186-4
186-1
186-3
186-2
RV7: CONV Y REC CURRENT
RV8: SP Y REC CURRENT
RV1: CHROMA REC CURRENT
RV3: CH-A REC FREQ RESPONSE
RV5: CH-B REC FREQ RESPONSE
L101 100
PS2
Q101 2SC403SP
Q102 2SC403SP
Q103 2SC403SP
Q104 2SD773
Q105 2SB733
Q106 2SC403SP
Q107 2SC403SP
Q108 2SD773
Q109 2SB733
TP101
TP102
TP103
E101
E102
RV101: CH-B RE CURRENT
RV102: CH-A RE CURRENT
D105 1SS119
D106 1SS119
D107 1SS119
D108 1SS119
CH-A RE OUT (X) 187-6
CH-A RE OUT (Y) 187-5
CH-A RE OUT (G) 187-4
CH-B RE OUT (X) 187-2
CH-B RE OUT (Y) 187-1
CH-B RE OUT (G) 187-3
CH-A
CH-B
SLIPRING & BRUSH
ROTALY ERASE


①
②
③
IC1 BX373AL
IC2 2SC3064-6
Q1 2SC2878
IC3 BX1265L
Q3 2SC403SP Q4 2SC403SP
TP3 TP4 TP1 TP2
R2 82
R1 82
Y BUFFER
CHROMA BUFFER
Y CHROMA MIXER
MUTING
Vcc
GND
C5 0.047 :PT
R3 750 :RN
L2 470
R4 910 :RN
C6 0.047 :PT
R5 1500 :RN
E1 E2
T1
R8 3300
R6 510 :RN
R7 510 :RN
RV3 4700
C7 0.047 X:CCS
R9 75
D1 1SS119
R10 20 :RN
R11 20 :RN
RV3;CH-A REC FREQ RESPONSE
JW43
D3 RD2.7E
D2 1SS119
R12 470
R13 22k
C8 0.047 X:CCS
C9 47 16V
T2
CH-A VIDEO HEAD
186-5 186-6 186-4
L3 100
C10 0.047 X:CCS
C11 47 16V
T3
SL1
TP6 TP5
④
RF MUTE
C13 0.01 :PT
R15 33k
RV4 2200
E3
R25 1k
C21 1000p :CA
R26 47k
R27 10k
RV4;CH-A PB FREQ RESPONSE
C14 1 50V
TP7
GND 184-7 DM. 108-2
CH-A PB RF OUT (X) 184-5 DM. 108-4
CH-A PB RF OUT (G) 184-4 DM. 108-5
EC CURRENT
RV1;CHROMA REC CURRENT
⑥
IC4 TC4009UBP
R16 1k
R31 10k
R32 10k
R17 1k
VDD
IC5 2SC3064-6
Q2 2SC2878
RV5 4700
R18 20 :RN
R19 20 :RN
D4 1SS119
R20 470
R21 22k
R22 1500
C15 0.047 X:CCS
RV5;CH-B REC FREQ RESPONSE
T4
CH-B VIDEO HEAD
186-1 186-3 186-2
L4 100
C16 0.047 X:CCS
C17 47 16V
T5
SL2
TP8 TP9
⑤
IC6 BX1265L
Q5 2SC403SP Q6 2SC403SP
C19 0.01 :PT
R24 33k
RV6 2200
E4
R28 1k
C22 1000p :CA
R29 47k
R30 10k
RV6;CH-B PB FREQ RESPONSE
C20 1 50V
TP10
NC 184-1 DM. 108-8
CH-B PB RF OUT (X) 184-3 DM. 108-6
CH-B PB RF OUT (G) 184-2 DM. 108-7
Q104 2SD773
2SC403SP Q105 2SB733
Q106 2SC403SP Q107 2SC403SP Q109 2SB733
Q108 2SD773
R108 470
R109 4.7
R110 4.7
D102 1SS119
C106 430p :MS
C107 0.047
C108 47 16V
C120 0.047 :CCS
C105 0.047 25V X:CCS
R106 4700
R107 100
E101
C109 0.01 :PT
R111 22k
R112 22k
R116 470
D103 1SS119
R117 4.7
R118 4.7
D104 1SS119
R113 10k
R114 4700
R115 100
C111 430p :MS
C121 0.047 :CCS
C110 0.047 25V X:CCS
TP102
TP103
E102
R119 4.7
R120 4.7
D107 1SS119
D108 1SS119
CH-A RE OUT (X) 187-6
CH-A RE OUT (Y) 187-5
CH-A RE OUT (G) 187-4
CH-B RE OUT (X) 187-2
CH-B RE OUT (Y) 187-1
CH-B RE OUT (G) 187-3
82
84
CH-A
CH-B
ROTALY ERASE
SLIPRING & BRUSH

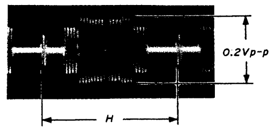
RP-40

1-629-476-11
VO-9850

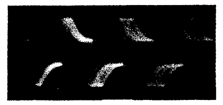
注意 1：⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

① TP1 TP2 REC

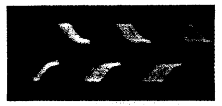


② TP3 REC



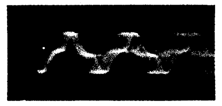
H;0.1μsec/div
V;0.2V/div

③ TP4 REC



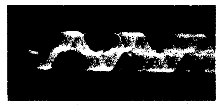
H;0.1μsec/div
V;0.2V/div

④ TP5 TP6 REC



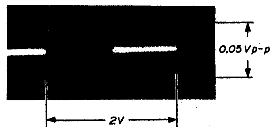
H;0.1μsec/div
V;2V/div

⑤ TP8 TP9 REC

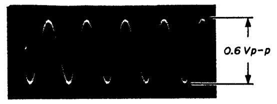


H;0.1μsec/div
V;2V/div

⑥ TP7 TP10 PB



⑦ TP101 REC



4.27MHz

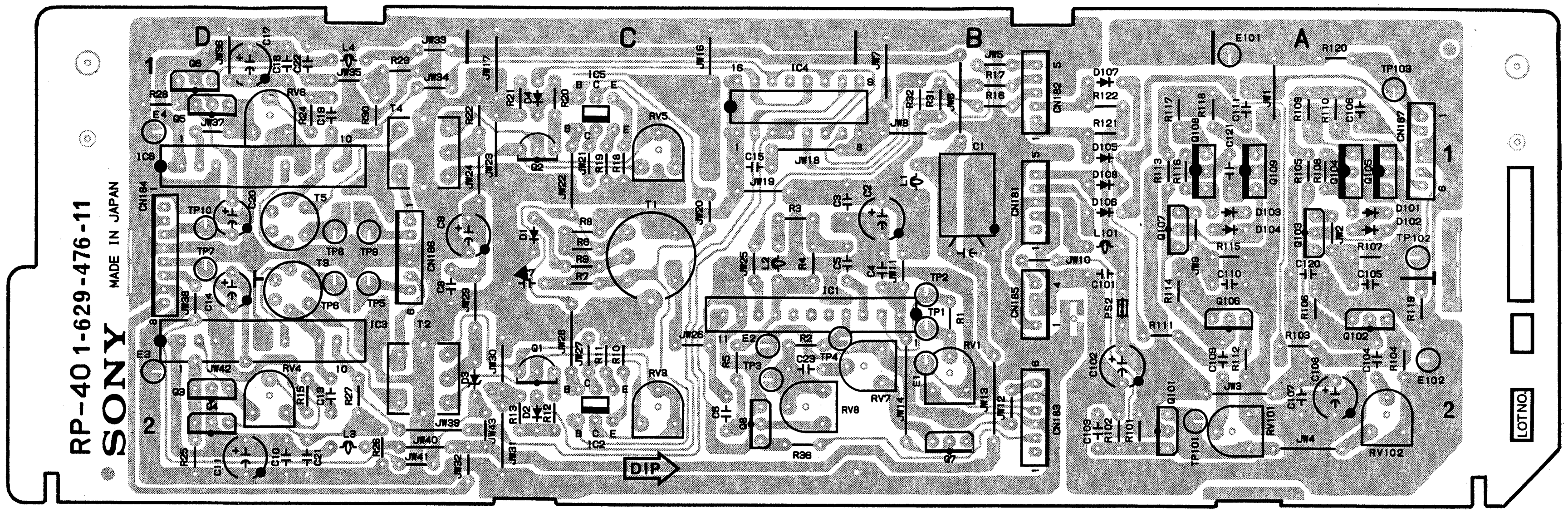
RP-40: REC/PB AMPLIFIER, ROTARY ERASE DRIVE

RP-40 (1-629-476-11) C

CN181	B-1	T1	C-1
CN182	B-1	T2	D-2
CN183	B-2	T3	D-1
CN184	D-1	T4	D-1
CN185	B-2	T5	D-1
CN186	D-1		
CN187	A-1		
D1	C-1		
D2	C-2		
D3	D-2		
D4	C-1		
D101	A-1		
D102	A-1		
D103	A-1		
D104	A-1		
D105	B-1		
D106	B-1		
D107	B-1		
D108	B-1		
IC1	C-2		
IC2	C-2		
IC3	D-2		
IC4	C-1		
IC5	C-1		
IC6	D-1		
L1	B-1		
L2	C-1		
L3	D-2		
L4	D-1		
L101	B-1		
PS2	B-2		
Q1	C-2		
Q2	C-1		
Q3	D-2		
Q4	D-2		
Q5	D-1		
Q6	D-1		
Q7	B-2		
Q8	C-2		
Q101	B-2		
Q102	A-2		
Q103	A-1		
Q104	A-1		
Q105	A-1		
Q106	A-2		
Q107	B-1		
Q108	B-1		
Q109	A-1		
RV1	B-2		
RV3	C-2		
RV4	D-2		
RV5	C-1		
RV6	D-1		
RV7	B-2		
RV8	C-2		
RV101	A-2		
RV102	A-2		

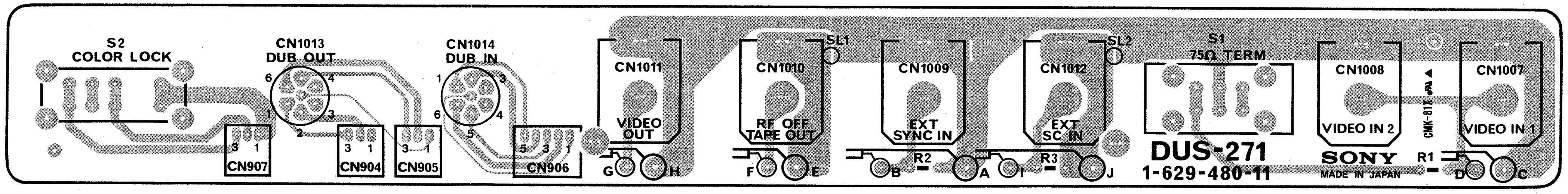
RP-40 (1-629-476-11) S

E1	B-2
E2	C-2
E3	D-2
E4	D-1
E101	A-1
E102	A-2
TP1	B-2
TP2	B-1
TP3	C-2
TP4	C-2
TP5	D-1
TP6	D-1
TP7	D-1
TP8	D-1
TP9	D-1
TP10	D-1
TP101	B-2
TP102	A-1
TP103	A-1


RP-40 1-629-476-11
MADE IN JAPAN
SONY
D
C
B
A
1
2
DIP
LOT NO.

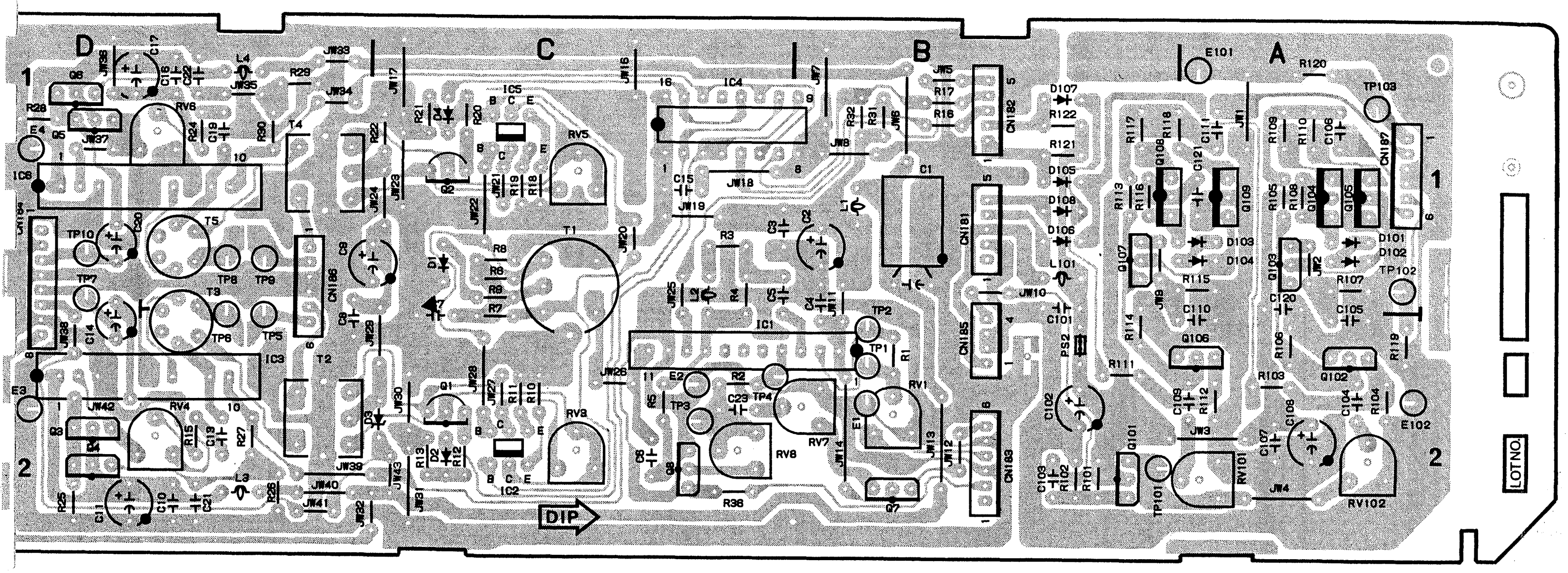
RP-40

—COMPONENT SIDE—
1-629-476-11
VO-9850


S2
COLOR LOCK
CN1013
DUB OUT
CN1014
DUB IN
CN1011
VIDEO OUT
SL1
CN1010
RF OFF
TAPE OUT
CN1009
EXT
SYNC IN
CN1012
EXT
SC IN
SL2
S1
75Ω TERM
CN1008
VIDEO IN 2
CN1007
VIDEO IN 1
CN907
CN904
CN905
CN906
R1
R2
R3
G
H
F
E
B
A
I
J
D
C
DUS-271
1-629-480-11
SONY
MADE IN JAPAN

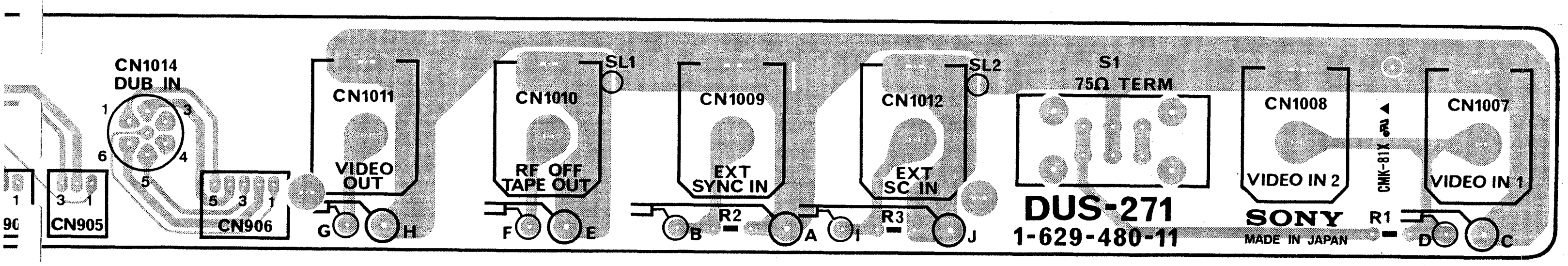
DUS-271

—COMPONENT SIDE—
1-629-480-11
VO-9850
VO-9850P
VO-9800
VO-9800P


D
C
B
A
1
2
MADE IN JAPAN
SONY
DIP
LOTNO.
E101
R120
TP103
E102
RV102
T1
T3
T5
IC1
IC2
IC3
IC4
IC5
IC6
CN181
CN182
CN183
CN184
CN185
CN186
CN187

RP-40

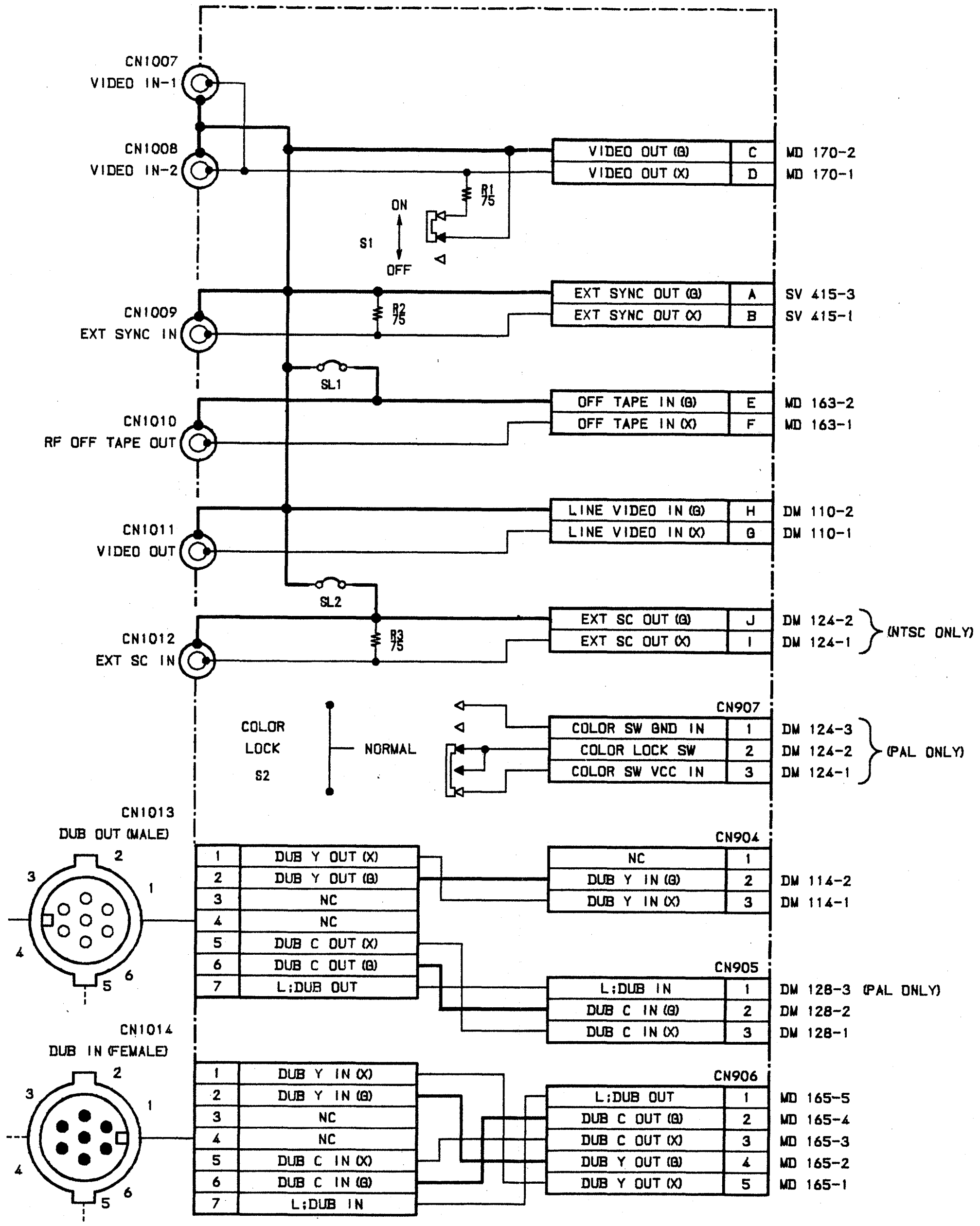
—COMPONENT SIDE—
1-629-476-11
VO-9850


CN1014
DUB IN
CN905
CN906
CN1011
VIDEO OUT
CN1010
RF OFF TAPE OUT
SL1
CN1009
EXT SYNC IN
CN1012
EXT SC IN
SL2
S1
75Ω TERM
CN1008
VIDEO IN 2
CN1007
VIDEO IN 1
G
H
F
E
B
R2
A
I
R3
J
R1
D
C
DUS-271
1-629-480-11
SONY
MADE IN JAPAN

DUS-271

—COMPONENT SIDE—
1-629-480-11
VO-9850
VO-9850P
VO-9800
VO-9800P

DUS-271: CONNECTOR

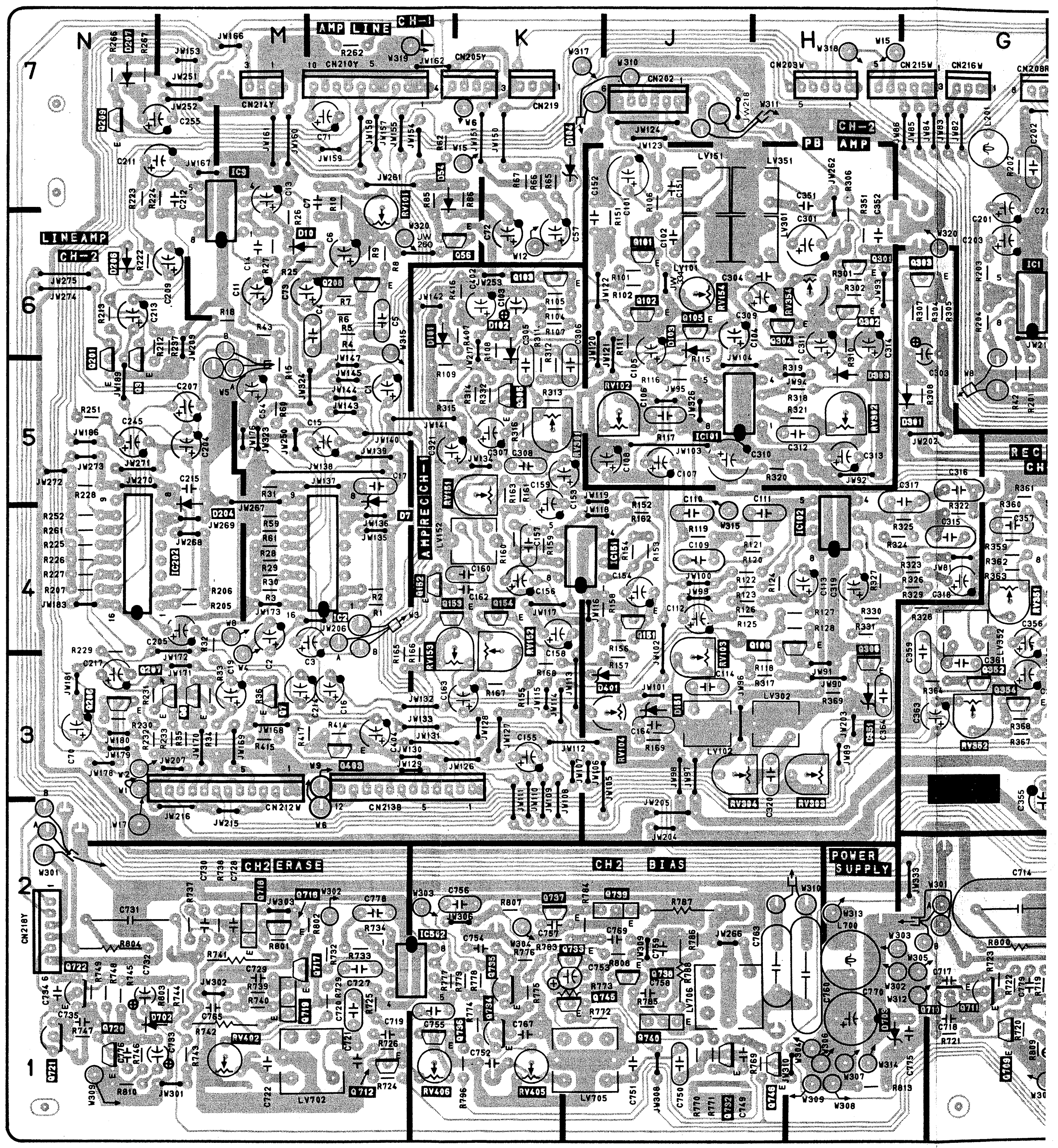

CN1007
VIDEO IN-1
CN1008
VIDEO IN-2
CN1009
EXT SYNC IN
CN1010
RF OFF TAPE OUT
CN1011
VIDEO OUT
CN1012
EXT SC IN
S1
ON
OFF
R1 75
R2 75
R3 75
SL1
SL2
VIDEO OUT (G) C MD 170-2
VIDEO OUT (X) D MD 170-1
EXT SYNC OUT (G) A SV 415-3
EXT SYNC OUT (X) B SV 415-1
OFF TAPE IN (G) E MD 163-2
OFF TAPE IN (X) F MD 163-1
LINE VIDEO IN (G) H DM 110-2
LINE VIDEO IN (X) G DM 110-1
EXT SC OUT (G) J DM 124-2
EXT SC OUT (X) I DM 124-1
(NTSC ONLY)
COLOR LOCK S2
NORMAL
CN907
COLOR SW GND IN 1 DM 124-3
COLOR LOCK SW 2 DM 124-2
COLOR SW VCC IN 3 DM 124-1
(PAL ONLY)
CN1013
DUB OUT (MALE)
1 DUB Y OUT (X)
2 DUB Y OUT (G)
3 NC
4 NC
5 DUB C OUT (X)
6 DUB C OUT (G)
7 L:DUB OUT
CN904
NC 1
DUB Y IN (G) 2 DM 114-2
DUB Y IN (X) 3 DM 114-1
CN905
L:DUB IN 1 DM 128-3 (PAL ONLY)
DUB C IN (G) 2 DM 128-2
DUB C IN (X) 3 DM 128-1
CN1014
DUB IN (FEMALE)
1 DUB Y IN (X)
2 DUB Y IN (G)
3 NC
4 NC
5 DUB C IN (X)
6 DUB C IN (G)
7 L:DUB IN
CN906
L:DUB OUT 1 MD 165-5
DUB C OUT (G) 2 MD 165-4
DUB C OUT (X) 3 MD 165-3
DUB Y OUT (G) 4 MD 165-2
DUB Y OUT (X) 5 MD 165-1

DUS-271

1-629-480-11
VO-9850
VO-9850P
VO-9800
VO-9800P

AU-124 (1/2): REC/PB AMPLIFIER, FULL ERASE OSCILLATOR

AU-124 (1-629-553-11) C								AU-124 (1-629-553-11) S	
CN201	B-7	IC51	C-7	Q304	H-6	Q738	J-1	E1	M-5
CN202	J-7	IC101	J-5	Q305	K-5	Q739	J-1	E151	H-7
CN203	H-7	IC102	H-4	Q306	H-4	Q740	J-1	E201	M-7
CN204	F-7	IC151	J-4	Q351	F-4	Q744	C-1	E501	M-3
CN205	K-7	IC202	N-4	Q352	G-3	Q745	J-1	E502	F-7
CN206	D-7	IC351	F-4	Q353	F-3	Q746	H-1	E601	A-4
CN207	C-7	IC501	E-2	Q354	G-3			E602	A-7
CN208	G-7	IC502	L-2	Q401	D-5	RV1	D-3	E701	G-2
CN209	E-7	IC503	A-2	Q402	C-5	RV51	C-5	E702	N-2
CN210	L-7	IC504	A-2	Q403	L-3	RV101	L-7	E704	K-2
CN212	M-2			Q451	F-3	RV102	J-5	E705	D-2
CN213	L-3	LV101	J-6	Q452	C-4	RV103	J-4	E706	H-2
CN214	M-7	LV102	J-3	Q501	F-6	RV104	J-3	E707	E-2
CN215	G-7	LV151	J-7	Q502	F-6	RV151	K-5	E708	B-1
CN216	G-7	LV152	K-4	Q503	E-5	RV152	K-4		
CN217	F-3	LV301	H-6	Q601	A-4	RV153	K-4	TP101	J-7
CN218	M-2	LV302	H-3	Q602	A-3	RV154	J-5	TP102	J-7
CN219	K-7	LV351	H-7	Q605	B-3	RV201	D-3	TP103	H-4
CN222	A-1	LV352	G-4	Q608	B-3	RV251	C-5	TP151	K-7
		LV701	E-1	Q701	E-1	RV301	K-5	TP152	K-6
CP601	A-4	LV702	L-1	Q705	F-2	RV302	H-5	TP301	H-7
		LV703	C-1	Q706	E-1	RV303	H-3	TP302	H-6
D2	D-3	LV704	B-1	Q707	F-2	RV304	J-3	TP303	G-5
D5	C-3	LV705	K-1	Q708	F-1	RV351	G-4	TP351	G-6
D7	L-5	LV706	J-1	Q709	G-1	RV352	G-3	TP352	H-6
D8	F-5			Q710	G-1	RV353	F-3	TP601	A-7
D9	C-2	L1	F-1	Q711	G-1	RV354	H-6	TP701	F-1
D10	M-6	L201	G-7	Q712	L-1	RV401	F-1	TP702	F-2
D51	E-5	L700	H-2	Q716	L-2	RV402	M-1	TP703	G-2
D52	D-4			Q717	L-1	RV403	D-1	TP704	G-1
D53	D-4	Q3	N-5	Q718	M-2	RV404	D-1	TP705	N-2
D54	L-7	Q4	C-2	Q719	L-1	RV405	K-1	TP706	N-3
D101	L-6	Q5	D-2	Q720	N-1	RV406	L-1	TP707	D-1
D102	K-6	Q6	C-3	Q721	N-1	RV604	B-3	TP708	B-2
D103	J-6	Q7	M-3	Q722	M-1			TP709	B-1
D104	K-7	Q8	M-3	Q723	C-1	X301	A-2	TP710	K-1
D151	J-3	Q51	D-6	Q724	C-1			TP711	H-2
D201	D-3	Q52	D-5	Q725	D-1			TP712	H-1
D202	D-3	Q53	D-7	Q726	G-1			TP722	N-1
D204	M-4	Q54	E-6	Q727	D-1			TP723	M-1
D205	D-2	Q55	E-7	Q728	D-2			TP724	D-1
D206	N-6	Q56	K-6	Q729	C-1				
D207	M-7	Q101	J-6	Q730	C-2				
D251	D-6	Q102	J-6	Q731	C-1				
D301	G-5	Q103	K-6	Q732	J-1				
D302	F-5	Q105	J-6	Q733	K-2				
D303	H-5	Q106	H-4	Q734	K-1				
D351	H-3	Q151	J-4	Q735	K-1				
D401	J-3	Q152	L-4	Q736	K-1				
D451	F-3	Q153	K-4	Q737	K-2				
D501	F-6	Q154	K-4	Q724	C-1				
D504	E-4	Q201	N-6	Q725	D-1				
D505	E-4	Q202	D-2	Q726	G-1				
D506	F-6	Q203	D-2	Q727	D-1				
D507	F-6	Q204	D-3	Q728	D-2				
D508	F-3	Q206	N-3	Q729	C-1				
D701	F-1	Q207	N-3	Q730	C-2				
D702	M-1	Q208	N-6	Q731	C-1				
D703	H-1	Q209	N-7	Q732	J-1				
D704	A-1	Q251	E-6	Q733	K-2				
		Q252	D-6	Q734	K-1				
IC1	G-6	Q301	H-6	Q735	K-1				
IC2	L-4	Q302	H-6	Q736	K-1				
IC3	M-7	Q303	G-6	Q737	K-2				



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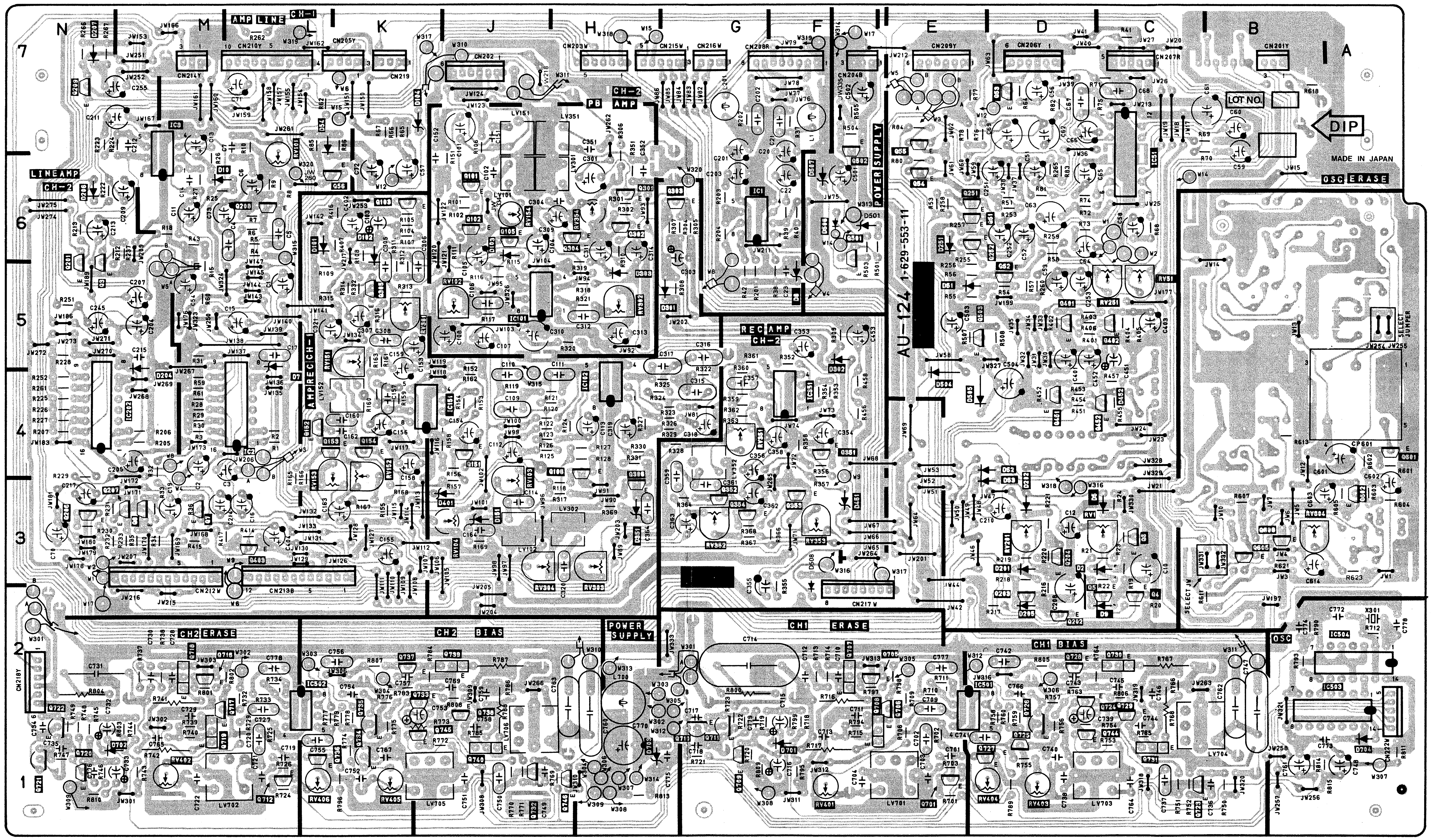
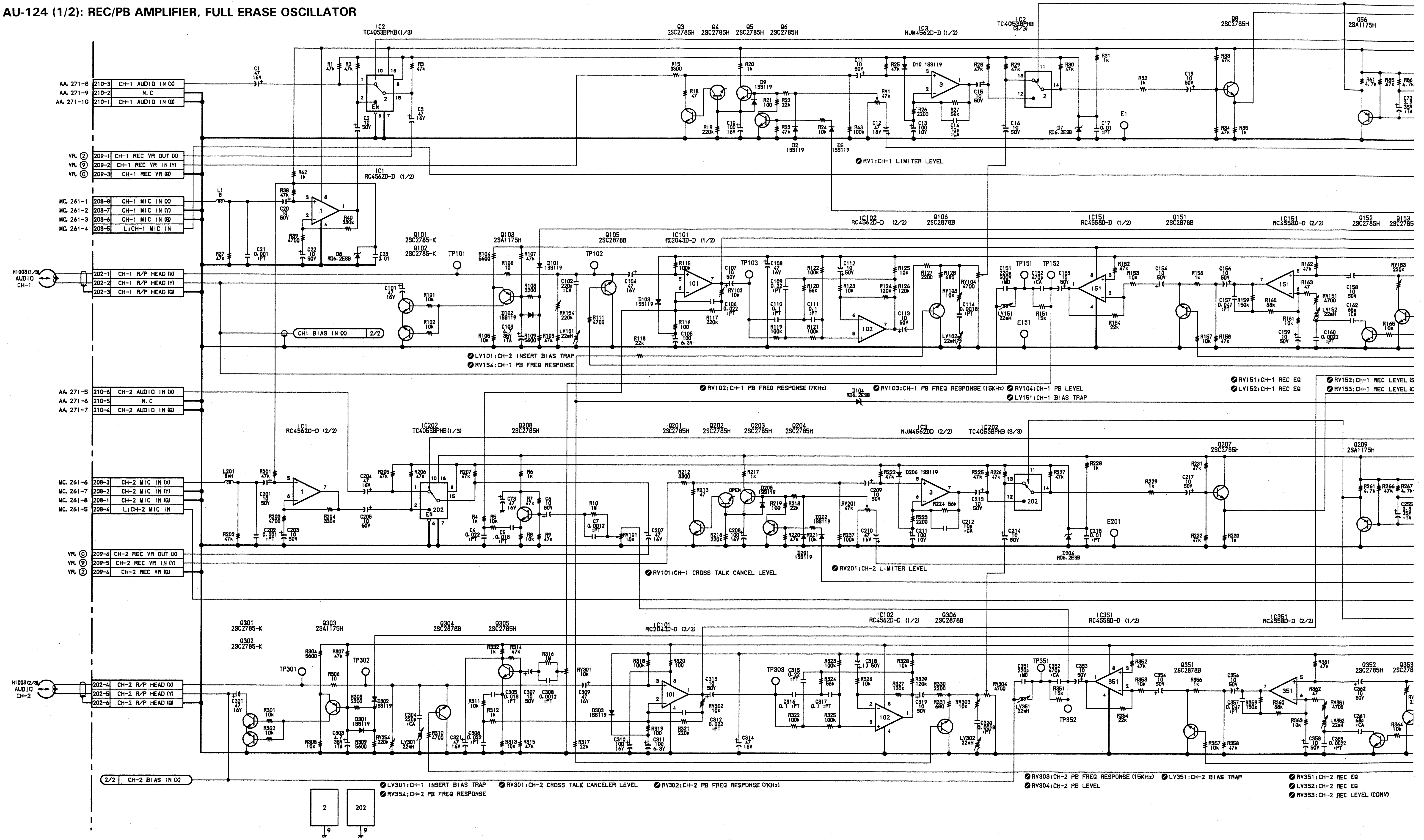
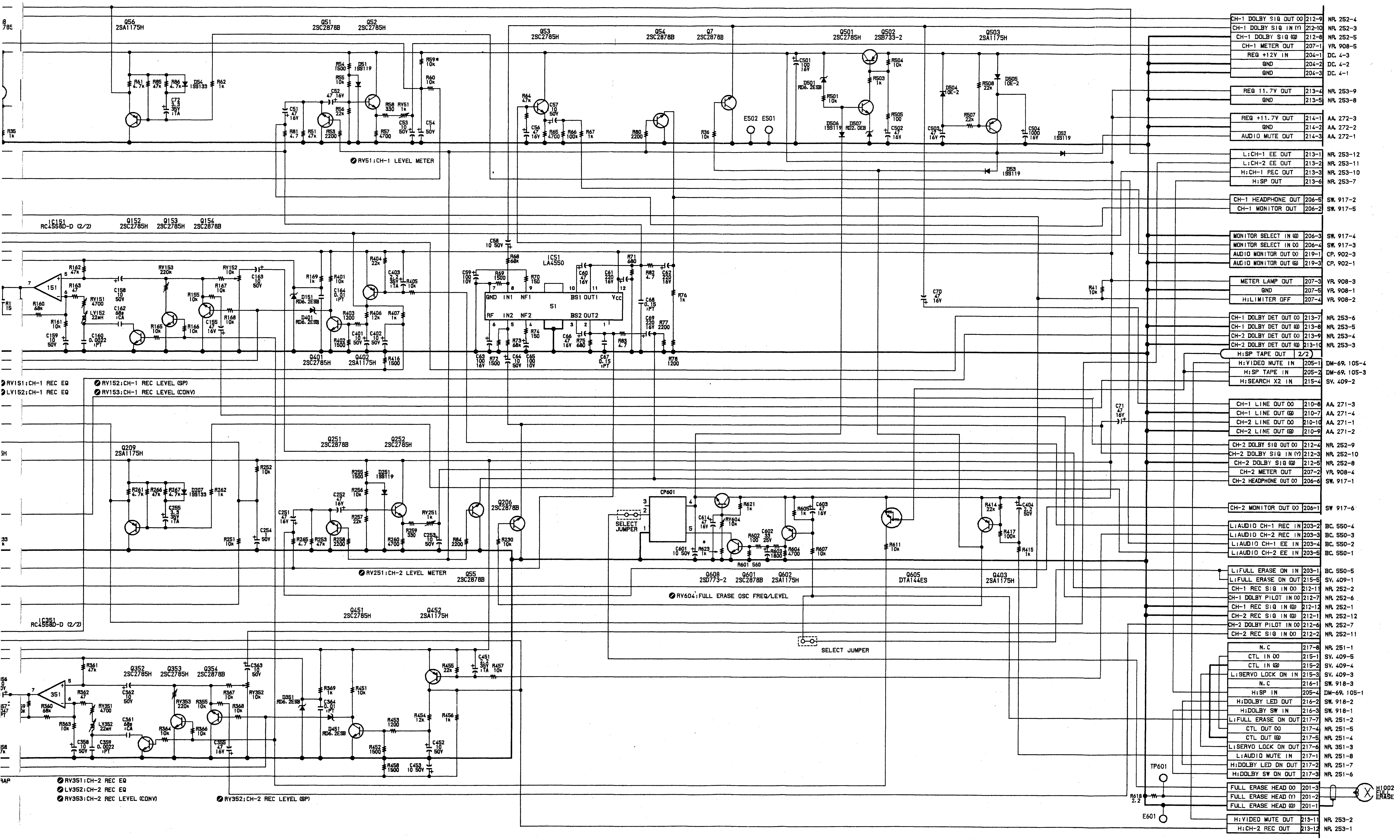

N
M
L
K
J
H
G
F
E
D
C
B
A
7
6
5
4
3
2
1
AMP LINE CH-1
LINE AMP CH-2
PB AMP CH-2
REC AMP CH-2
AMP REC CH-1
POWER SUPPLY
AU-124 1-629-553-11
LOT NO.
DIP
MADE IN JAPAN
OSC ERASE
SELECT JUMPER
SELECT JW
CH2 ERASE
CH2 BIAS
POWER SUPPLY
CH1 ERASE
CH1 BIAS
OSC

AU-124

—COMPONENT SIDE—
1-629-553-11
VO-9850
VO-9850P

AU-124 (1/2): REC/PB AMPLIFIER, FULL ERASE OSCILLATOR


AA. 271-8 210-3 CH-1 AUDIO IN (X)
AA. 271-9 210-2 N.C
AA. 271-10 210-1 CH-1 AUDIO IN (G)
VR. ② 209-1 CH-1 REC VR OUT (X)
VR. ⑨ 209-2 CH-1 REC VR IN (Y)
VR. ⓪ 209-3 CH-1 REC VR (G)
MC. 261-1 208-8 CH-1 MIC IN (X)
MC. 261-2 208-7 CH-1 MIC IN (Y)
MC. 261-3 208-6 CH-1 MIC IN (G)
MC. 261-4 208-5 L:CH-1 MIC IN
H1003(1/3) AUDIO CH-1
202-1 CH-1 R/P HEAD (X)
202-2 CH-1 R/P HEAD (Y)
202-3 CH-1 R/P HEAD (G)
CH1 BIAS IN (X) 2/2
AA. 271-5 210-6 CH-2 AUDIO IN (X)
AA. 271-6 210-5 N.C
AA. 271-7 210-4 CH-2 AUDIO IN (G)
MC. 261-6 208-3 CH-2 MIC IN (X)
MC. 261-7 208-2 CH-2 MIC IN (Y)
MC. 261-8 208-1 CH-2 MIC IN (G)
MC. 261-5 208-4 L:CH-2 MIC IN
VR. ⓪ 209-6 CH-2 REC VR OUT (X)
VR. ⑨ 209-5 CH-2 REC VR IN (Y)
VR. ② 209-4 CH-2 REC VR (G)
H1003(2/3) AUDIO CH-2
202-4 CH-2 R/P HEAD (X)
202-5 CH-2 R/P HEAD (Y)
202-6 CH-2 R/P HEAD (G)
2/2 CH-2 BIAS IN (X)
IC2 TC4053BPHB(1/3)
IC1 RC4562D-D (1/2)
IC1 RC4562D-D (2/2)
IC202 TC4053BPHB(1/3)
IC3 NJM4562D-D (1/2)
IC2 TC4053BPHB (3/3)
IC3 NJM4562DD (2/2)
IC202 TC4053BPHB (3/3)
IC101 RC2043D-D (1/2)
IC101 RC2043D-D (2/2)
IC102 RC4562D-D (2/2)
IC102 RC4562D-D (1/2)
IC151 RC4558D-D (1/2)
IC151 RC4558D-D (2/2)
IC351 RC4558D-D (1/2)
IC351 RC4558D-D (2/2)
TP101
TP102
TP103
TP151
TP152
TP301
TP302
TP303
TP351
TP352
E1
E151
E201
⊘RV1:CH-1 LIMITER LEVEL
⊘LV101:CH-2 INSERT BIAS TRAP
⊘RV154:CH-1 PB FREQ RESPONSE
⊘RV102:CH-1 PB FREQ RESPONSE (7KHz)
⊘RV103:CH-1 PB FREQ RESPONSE (15KHz)
⊘RV104:CH-1 PB LEVEL
⊘LV151:CH-1 BIAS TRAP
⊘RV151:CH-1 REC EQ
⊘LV152:CH-1 REC EQ
⊘RV152:CH-1 REC LEVEL
⊘RV153:CH-1 REC LEVEL
⊘RV101:CH-1 CROSS TALK CANCEL LEVEL
⊘RV201:CH-2 LIMITER LEVEL
⊘LV301:CH-1 INSERT BIAS TRAP
⊘RV354:CH-2 PB FREQ RESPONSE
⊘RV301:CH-2 CROSS TALK CANCELER LEVEL
⊘RV302:CH-2 PB FREQ RESPONSE (7KHz)
⊘RV303:CH-2 PB FREQ RESPONSE (15KHz)
⊘RV304:CH-2 PB LEVEL
⊘LV351:CH-2 BIAS TRAP
⊘RV351:CH-2 REC EQ
⊘LV352:CH-2 REC EQ
⊘RV353:CH-2 REC LEVEL (CONV)


Q56 2SA1175H
Q51 2SC2878B
Q52 2SC2785H
Q53 2SC2785H
Q54 2SC2878B
Q7 2SC2878B
Q501 2SC2785H
Q502 2SB733-2
Q503 2SA1175H
RV51:CH-1 LEVEL METER
E502
E501
D53 1SS119
D52 1SS119
IC151 RC4558D-D (2/2)
Q152 2SC2785H
Q153 2SC2785H
Q154 2SC2878B
IC51 LA4550
GND IN1 NF1 BS1 OUT1 Vcc
RF IN2 NF2 BS2 OUT2
Q401 2SC2785H
Q402 2SA1175H
RV151:CH-1 REC EQ
LV152:CH-1 REC EQ
RV152:CH-1 REC LEVEL (SP)
RV153:CH-1 REC LEVEL (CONV)
Q209 2SA1175H
Q251 2SC2878B
Q252 2SC2785H
Q206 2SC2878B
Q55 2SC2878B
RV251:CH-2 LEVEL METER
CP601
SELECT JUMPER
Q608 2SD773-2
Q601 2SC2878B
Q602 2SA1175H
Q605 DTA144ES
Q403 2SA1175H
RV604:FULL ERASE OSC FREQ/LEVEL
SELECT JUMPER
IC351 RC4558D-D (2/2)
Q451 2SC2785H
Q452 2SA1175H
Q352 2SC2785H
Q353 2SC2785H
Q354 2SC2878B
RV351:CH-2 REC EQ
LV352:CH-2 REC EQ
RV353:CH-2 REC LEVEL (CONV)
RV352:CH-2 REC LEVEL (SP)
TP601
E601
R618 2.2
CH-1 DOLBY SIG OUT (X) 212-9 NR. 252-4
CH-1 DOLBY SIG IN (Y) 212-10 NR. 252-3
CH-1 DOLBY SIG (G) 212-8 NR. 252-5
CH-1 METER OUT 207-1 VR. 908-5
REG +12V IN 204-1 DC. 4-3
GND 204-2 DC. 4-2
GND 204-3 DC. 4-1
REG 11.7V OUT 213-4 NR. 253-9
GND 213-5 NR. 253-8
REG +11.7V OUT 214-1 AA. 272-3
GND 214-2 AA. 272-2
AUDIO MUTE OUT 214-3 AA. 272-1
L:CH-1 EE OUT 213-1 NR. 253-12
L:CH-2 EE OUT 213-2 NR. 253-11
H:CH-1 REC OUT 213-3 NR. 253-10
H:SP OUT 213-6 NR. 253-7
CH-1 HEADPHONE OUT 206-5 SW. 917-2
CH-1 MONITOR OUT 206-2 SW. 917-5
MONITOR SELECT IN (G) 206-3 SW. 917-4
MONITOR SELECT IN (X) 206-4 SW. 917-3
AUDIO MONITOR OUT (X) 219-1 CP. 902-3
AUDIO MONITOR OUT (G) 219-3 CP. 902-1
METER LAMP OUT 207-3 VR. 908-3
GND 207-5 VR. 908-1
H:LIMITER OFF 207-4 VR. 908-2
CH-1 DOLBY DET OUT (X) 213-7 NR. 253-6
CH-1 DOLBY DET OUT (G) 213-8 NR. 253-5
CH-2 DOLBY DET OUT (X) 213-9 NR. 253-4
CH-2 DOLBY DET OUT (G) 213-10 NR. 253-3
H:SP TAPE OUT 2/2
H:VIDEO MUTE IN 205-1 DM-69, 105-4
H:SP TAPE IN 205-2 DM-69, 105-3
H:SEARCH X2 IN 215-4 SV. 409-2
CH-1 LINE OUT (X) 210-8 AA. 271-3
CH-1 LINE OUT (G) 210-7 AA. 271-4
CH-2 LINE OUT (X) 210-10 AA. 271-1
CH-2 LINE OUT (G) 210-9 AA. 271-2
CH-2 DOLBY SIG OUT (X) 212-4 NR. 252-9
CH-2 DOLBY SIG IN (Y) 212-3 NR. 252-10
CH-2 DOLBY SIG (G) 212-5 NR. 252-8
CH-2 METER OUT 207-2 VR. 908-4
CH-2 HEADPHONE OUT (X) 206-6 SW. 917-1
CH-2 MONITOR OUT (X) 206-1 SW 917-6
L:AUDIO CH-1 REC IN 203-2 BC. 550-4
L:AUDIO CH-2 REC IN 203-3 BC. 550-3
L:AUDIO CH-1 EE IN 203-4 BC. 550-2
L:AUDIO CH-2 EE IN 203-5 BC. 550-1
L:FULL ERASE ON IN 203-1 BC. 550-5
L:FULL ERASE ON OUT 215-5 SV. 409-1
CH-1 REC SIG IN (X) 212-11 NR. 252-2
CH-1 DOLBY PILOT IN (X) 212-7 NR. 252-6
CH-1 REC SIG IN (G) 212-12 NR. 252-1
CH-2 REC SIG IN (G) 212-1 NR. 252-12
CH-2 DOLBY PILOT IN (X) 212-6 NR. 252-7
CH-2 REC SIG IN (X) 212-2 NR. 252-11
N.C 217-8 NR. 251-1
CTL IN (X) 215-1 SV. 409-5
CTL IN (G) 215-2 SV. 409-4
L:SERVO LOCK ON IN 215-3 SV. 409-3
N.C 216-1 SW. 918-3
H:SP IN 205-4 DM-69, 105-1
H:DOLBY LED OUT 216-2 SW. 918-2
H:DOLBY SW IN 216-3 SW. 918-1
L:FULL ERASE ON OUT 217-7 NR. 251-2
CTL OUT (X) 217-4 NR. 251-5
CTL OUT (G) 217-5 NR. 251-4
L:SERVO LOCK ON OUT 217-6 NR. 351-3
L:AUDIO MUTE IN 217-1 NR. 251-8
H:DOLBY LED ON OUT 217-2 NR. 251-7
H:DOLBY SW ON OUT 217-3 NR. 251-6
FULL ERASE HEAD (X) 201-3
FULL ERASE HEAD (Y) 201-2
FULL ERASE HEAD (G) 201-1
H1002 FULL ERASE
H:VIDEO MUTE OUT 213-11 NR. 253-2
H:CH-2 REC OUT 213-12 NR. 253-1

AU-124 (1/2)

1-629-553-11
VO-9850
VO-9850P

AU-124 (2/2): ERASE/BIAS OSCILLATOR

AU-124 (1-629-553-11) C

CN201	B-7
CN202	J-7
CN203	H-7
CN204	F-7
CN205	K-7
CN206	D-7
CN207	C-7
CN208	G-7
CN209	E-7
CN210	L-7
CN212	M-2
CN213	L-3
CN214	M-7
CN215	G-7
CN216	G-7
CN217	F-3
CN218	M-2
CN219	K-7
CN222	A-1
CP601	A-4
D2	D-3
D5	C-3
D7	L-5
D8	F-5
D9	C-2
D10	M-6
D51	E-5
D52	D-4
D53	D-4
D54	L-7
D101	L-6
D102	K-6
D103	J-6
D104	K-7
D151	J-3
D201	D-3
D202	D-3
D204	M-4
D205	D-2
D206	N-6
D207	M-7
D251	D-6
D301	G-5
D302	F-5
D303	H-5
D351	H-3
D401	J-3
D451	F-3
D501	F-6
D504	E-4
D505	E-4
D506	F-6
D507	F-6
D508	F-3
D701	F-1
D702	M-1
D703	H-1
D704	A-1
IC1	G-6
IC2	L-4
IC3	M-7

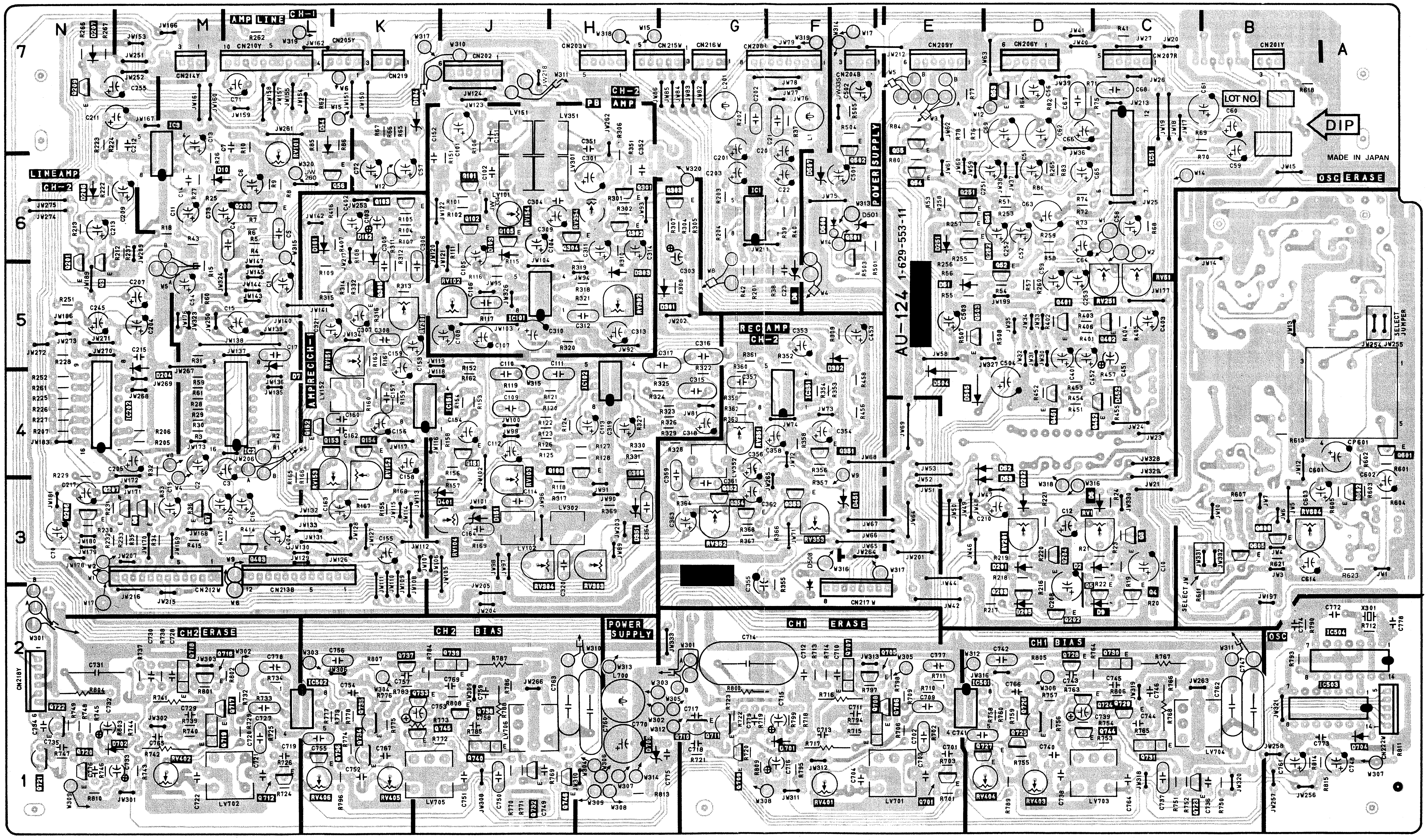
IC51	C-7
IC101	J-5
IC102	H-4
IC151	J-4
IC202	N-4
IC351	F-4
IC501	E-2
IC502	L-2
IC503	A-2
IC504	A-2
LV101	J-6
LV102	J-3
LV151	J-7
LV152	K-4
LV301	H-6
LV302	H-3
LV351	H-7
LV352	G-4
LV701	E-1
LV702	L-1
LV703	C-1
LV704	B-1
LV705	K-1
LV706	J-1
L1	F-1
L201	G-7
L700	H-2
Q3	N-5
Q4	C-2
Q5	D-2
Q6	C-3
Q7	M-3
Q8	M-3
Q51	D-6
Q52	D-5
Q53	D-7
Q54	E-6
Q55	E-7
Q56	K-6
Q101	J-6
Q102	J-6
Q103	K-6
Q105	J-6
Q106	H-4
Q151	J-4
Q152	L-4
Q153	K-4
Q154	K-4
Q201	N-6
Q202	D-2
Q203	D-2
Q204	D-3
Q206	N-3
Q207	N-3
Q208	N-6
Q209	N-7
Q251	E-6
Q252	D-6
Q301	H-6
Q302	H-6
Q303	G-6

Q304	H-6
Q305	K-5
Q306	H-4
Q351	F-4
Q352	G-3
Q353	F-3
Q354	G-3
Q401	D-5
Q402	C-5
Q403	L-3
Q451	F-3
Q452	C-4
Q501	F-6
Q502	F-6
Q503	E-5
Q601	A-4
Q602	A-3
Q605	B-3
Q608	B-3
Q701	E-1
Q705	F-2
Q706	E-1
Q707	F-2
Q708	F-1
Q709	G-1
Q710	G-1
Q711	G-1
Q712	L-1
Q716	L-2
Q717	L-1
Q718	M-2
Q719	L-1
Q720	N-1
Q721	N-1
Q722	M-1
Q723	C-1
Q724	C-1
Q725	D-1
Q726	G-1
Q727	D-1
Q728	D-2
Q729	C-1
Q730	C-2
Q731	C-1
Q732	J-1
Q733	K-2
Q734	K-1
Q735	K-1
Q736	K-1
Q737	K-2
Q724	C-1
Q725	D-1
Q726	G-1
Q727	D-1
Q728	D-2
Q729	C-1
Q730	C-2
Q731	C-1
Q732	J-1
Q733	K-2
Q734	K-1
Q735	K-1
Q736	K-1
Q737	K-2

Q738	J-1
Q739	J-1
Q740	J-1
Q744	C-1
Q745	J-1
Q746	H-1
RV1	D-3
RV51	C-5
RV101	L-7
RV102	J-5
RV103	J-4
RV104	J-3
RV151	K-5
RV152	K-4
RV153	K-4
RV154	J-5
RV201	D-3
RV251	C-5
RV301	K-5
RV302	H-5
RV303	H-3
RV304	J-3
RV351	G-4
RV352	G-3
RV353	F-3
RV354	H-6
RV401	F-1
RV402	M-1
RV403	D-1
RV404	D-1
RV405	K-1
RV406	L-1
RV604	B-3
X301	A-2

AU-124 (1-629-553-11) S

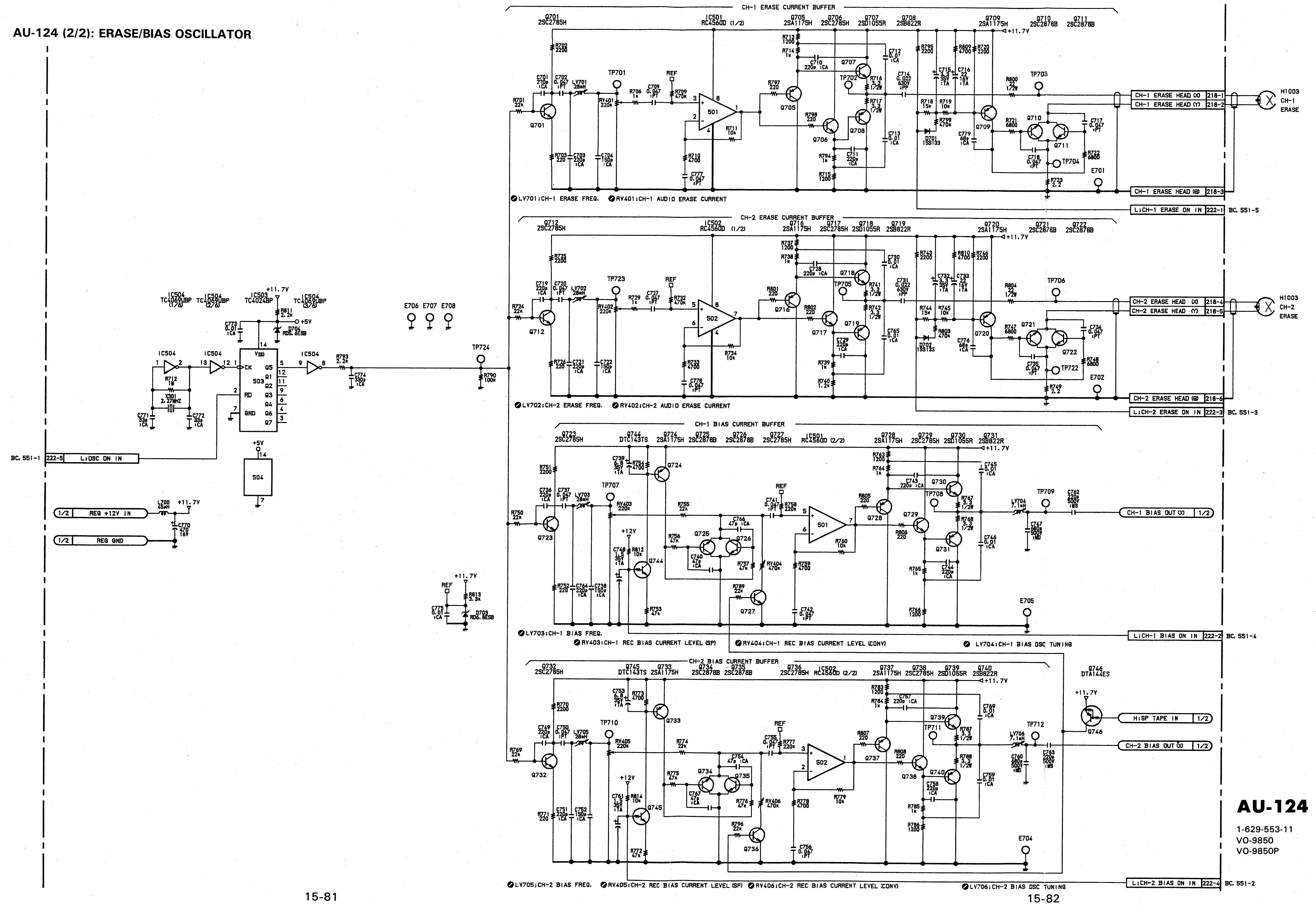
E1	M-5
E151	H-7
E201	M-7
E501	M-3
E502	F-7
E601	A-4
E602	A-7
E701	G-2
E702	N-2
E704	K-2
E705	D-2
E706	H-2
E707	E-2
E708	B-1
TP101	J-7
TP102	J-7
TP103	H-4
TP151	K-7
TP152	K-6
TP301	H-7
TP302	H-6
TP303	G-5
TP351	G-6
TP352	H-6
TP601	A-7
TP701	F-1
TP702	F-2
TP703	G-2
TP704	G-1
TP705	N-2
TP706	N-3
TP707	D-1
TP708	B-2
TP709	B-1
TP710	K-1
TP711	H-2
TP712	H-1
TP722	N-1
TP723	M-1
TP724	D-1


N
M
AMP LINE CH-1
L
K
J
H
G
F
E
D
C
B
A
7
6
5
4
3
2
1
LINEAMP CH-2
PB CH-2 AMP
POWER SUPPLY
AMP REC CH-1
REC AMP CH-2
AU-124 1-629-553-11
LOT NO.
DIP
MADE IN JAPAN
OSC ERASE
SELECT JUMPER
CH2 ERASE
CH2 BIAS
POWER SUPPLY
CH1 ERASE
CH1 BIAS
OSC

AU-124

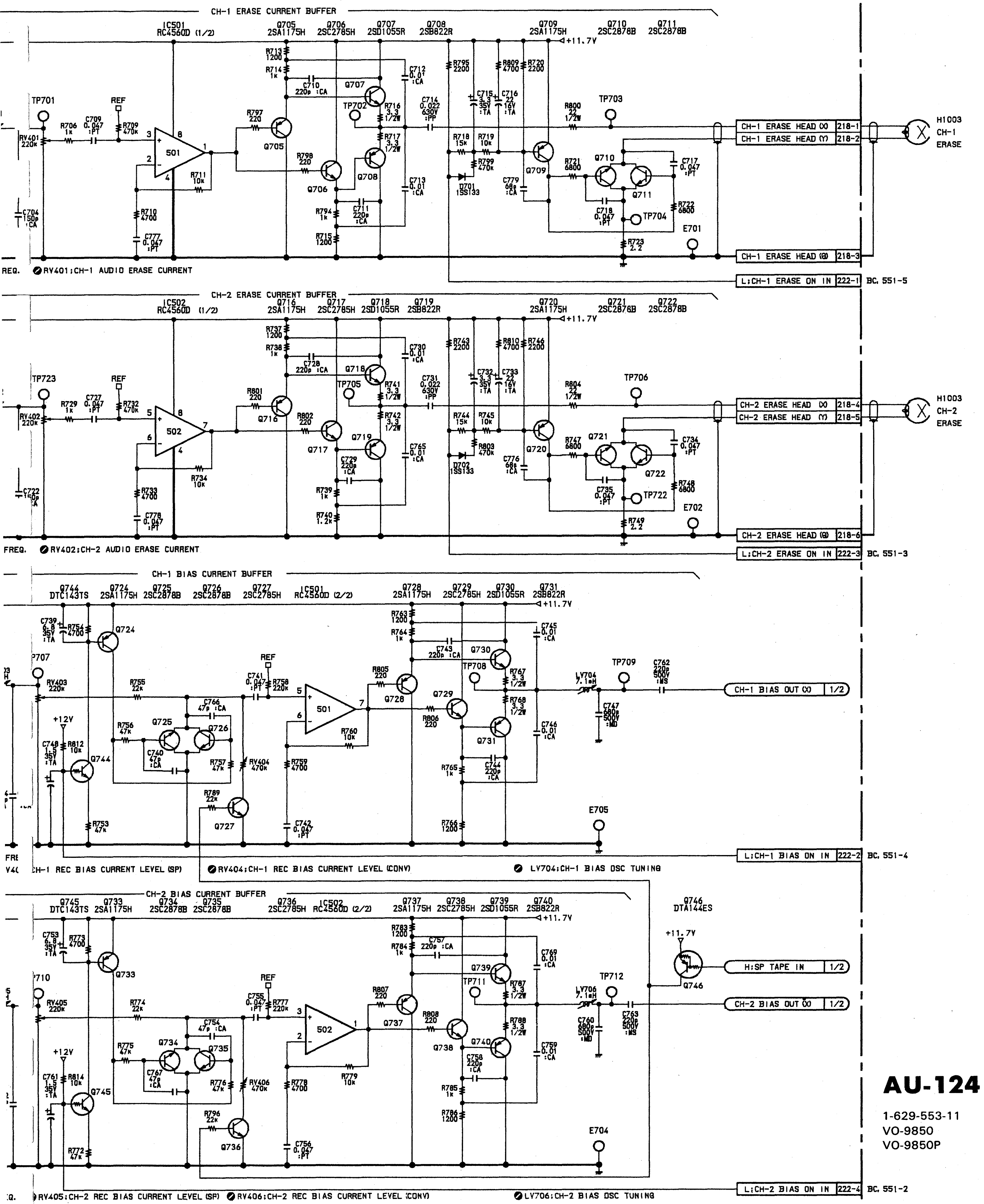
—COMPONENT SIDE—
1-629-553-11
VO-9850
VO-9850P

AU-124 (2/2): ERASE/BIAS OSCILLATOR


CH-1 ERASE CURRENT BUFFER
CH-2 ERASE CURRENT BUFFER
CH-1 BIAS CURRENT BUFFER
CH-2 BIAS CURRENT BUFFER
IC501 RC4560D (1/2)
IC502 RC4560D (1/2)
IC501 RC4560D (2/2)
IC502 RC4560D (2/2)
IC503 TC4024BP
IC504 TC4069UBP
X301 2.27MHZ
BC. 551-1 222-5 L:OSC ON IN
1/2 REG +12V IN
1/2 REG GND
TP724
E706 E707 E708
TP701 TP702 TP703 TP704 TP705 TP706 TP707 TP708 TP709 TP710 TP711 TP712 TP722
E701 E702 E704 E705
+11.7V
+5V
+12V
REF
CH-1 ERASE HEAD (X) 218-1
CH-1 ERASE HEAD (Y) 218-2
CH-1 ERASE HEAD (G) 218-3
L:CH-1 ERASE ON IN 222-1 BC. 551-5
H1003 CH-1 ERASE
CH-2 ERASE HEAD (X) 218-4
CH-2 ERASE HEAD (Y) 218-5
CH-2 ERASE HEAD (G) 218-6
L:CH-2 ERASE ON IN 222-3 BC. 551-3
H1003 CH-2 ERASE
CH-1 BIAS OUT (X) 1/2
L:CH-1 BIAS ON IN 222-2 BC. 551-4
H:SP TAPE IN 1/2
CH-2 BIAS OUT (X) 1/2
L:CH-2 BIAS ON IN 222-4 BC. 551-2
Q746 DTA144ES
LV701:CH-1 ERASE FREQ.
RV401:CH-1 AUDIO ERASE CURRENT
LV702:CH-2 ERASE FREQ.
RV402:CH-2 AUDIO ERASE CURRENT
LV703:CH-1 BIAS FREQ.
RV403:CH-1 REC BIAS CURRENT LEVEL (SP)
RV404:CH-1 REC BIAS CURRENT LEVEL (CONV)
LV704:CH-1 BIAS OSC TUNING
LV705:CH-2 BIAS FREQ.
RV405:CH-2 REC BIAS CURRENT LEVEL (SP)
RV406:CH-2 REC BIAS CURRENT LEVEL (CONV)
LV706:CH-2 BIAS OSC TUNING

AU-124 (2/2)

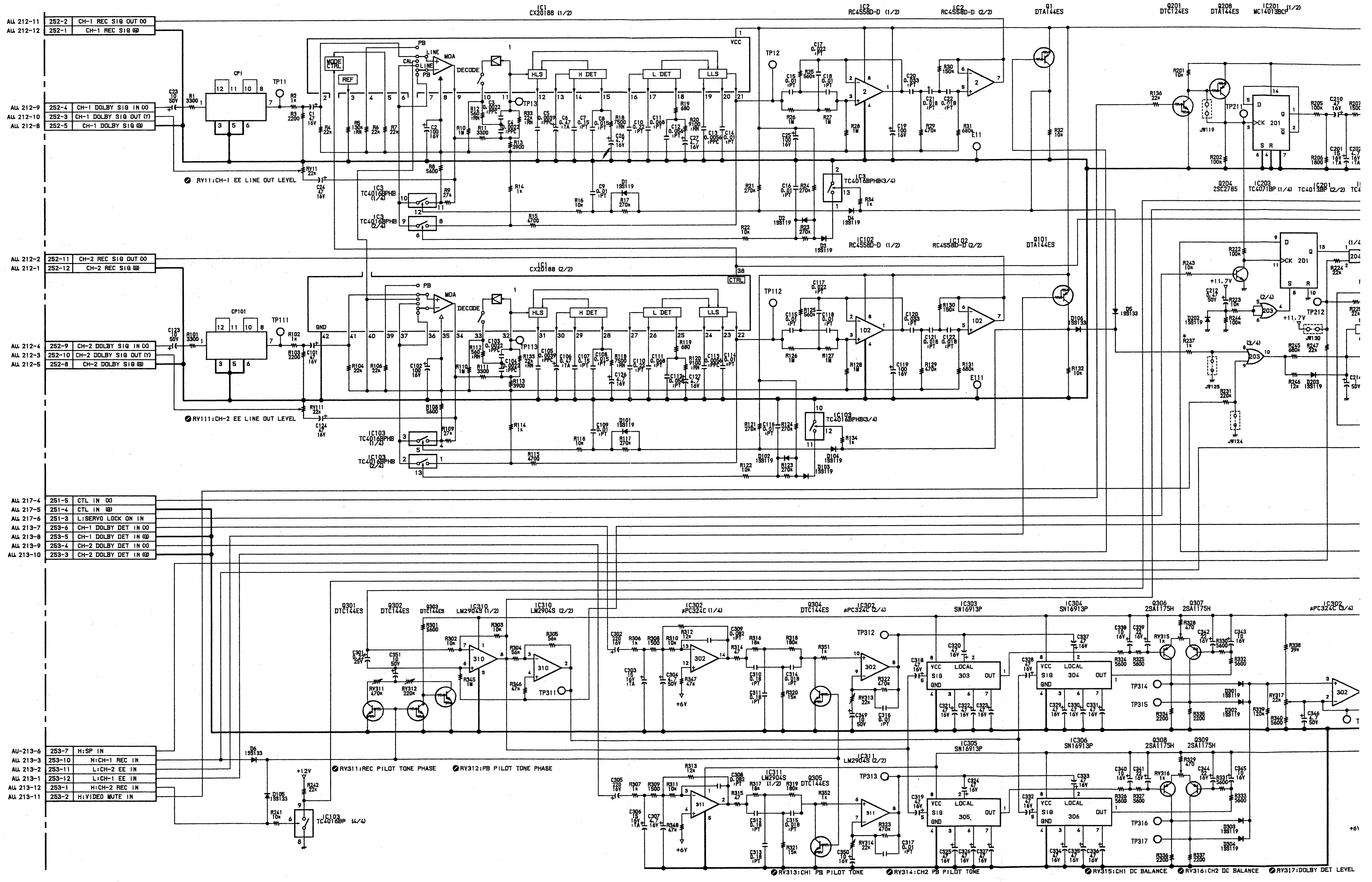
1-629-553-11
VO-9850
VO-9850P

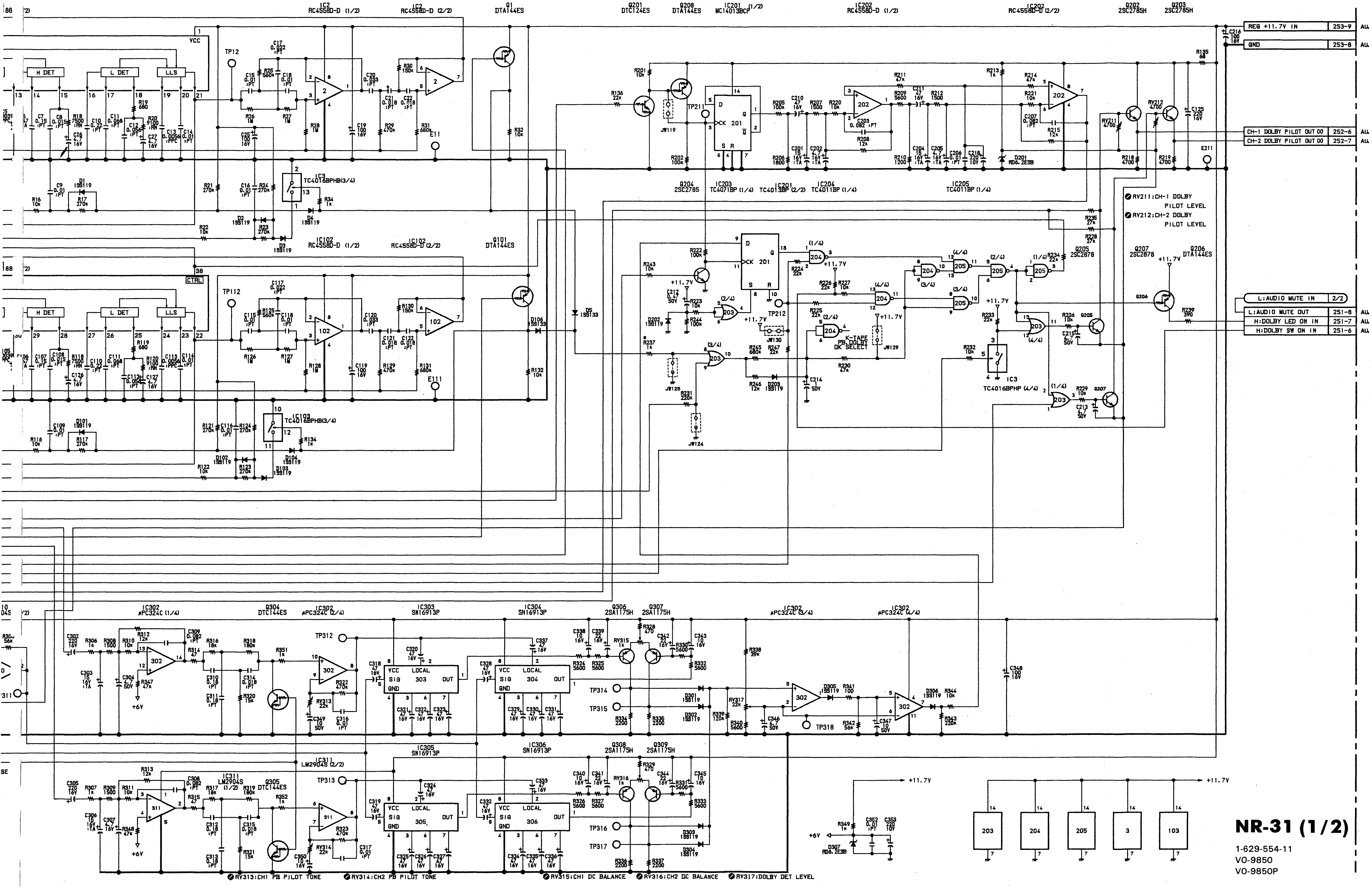

CH-1 ERASE CURRENT BUFFER
IC501 RC4560D (1/2)
Q705 2SA1175H
Q706 2SC2785H
Q707 2SD1055R
Q708 2SB822R
Q709 2SA1175H
Q710 2SC2878B
Q711 2SC2878B
+11.7V
TP701
TP702
TP703
TP704
REF
D701 1SS133
E701
CH-1 ERASE HEAD (X) 218-1
CH-1 ERASE HEAD (Y) 218-2
CH-1 ERASE HEAD (G) 218-3
L:CH-1 ERASE ON IN 222-1
BC. 551-5
H1003 CH-1 ERASE
RV401:CH-1 AUDIO ERASE CURRENT
CH-2 ERASE CURRENT BUFFER
IC502 RC4560D (1/2)
Q716 2SA1175H
Q717 2SC2785H
Q718 2SD1055R
Q719 2SB822R
Q720 2SA1175H
Q721 2SC2878B
Q722 2SC2878B
TP723
TP705
TP706
TP722
D702 1SS133
E702
CH-2 ERASE HEAD (X) 218-4
CH-2 ERASE HEAD (Y) 218-5
CH-2 ERASE HEAD (G) 218-6
L:CH-2 ERASE ON IN 222-3
BC. 551-3
H1003 CH-2 ERASE
RV402:CH-2 AUDIO ERASE CURRENT
CH-1 BIAS CURRENT BUFFER
Q744 DTC143TS
Q724 2SA1175H
Q725 2SC2878B
Q726 2SC2878B
Q727 2SC2785H
IC501 RC4560D (2/2)
Q728 2SA1175H
Q729 2SC2785H
Q730 2SD1055R
Q731 2SB822R
+12V
TP708
TP709
LV704 7.1mH
CH-1 BIAS OUT (X) 1/2
E705
L:CH-1 BIAS ON IN 222-2
BC. 551-4
CH-1 REC BIAS CURRENT LEVEL (SP)
RV404:CH-1 REC BIAS CURRENT LEVEL (CONV)
LV704:CH-1 BIAS OSC TUNING
CH-2 BIAS CURRENT BUFFER
Q745 DTC143TS
Q733 2SA1175H
Q734 2SC2878B
Q735 2SC2878B
Q736 2SC2785H
IC502 RC4560D (2/2)
Q737 2SA1175H
Q738 2SC2785H
Q739 2SD1055R
Q740 2SB822R
Q746 DTA144ES
TP711
TP712
LV706 7.1mH
H:SP TAPE IN 1/2
CH-2 BIAS OUT (X) 1/2
E704
L:CH-2 BIAS ON IN 222-4
BC. 551-2
RV405:CH-2 REC BIAS CURRENT LEVEL (SP)
RV406:CH-2 REC BIAS CURRENT LEVEL (CONV)
LV706:CH-2 BIAS OSC TUNING

AU-124 (2/2)

1-629-553-11
VO-9850
VO-9850P

NR-31 (1/2): DOLBY NR, NR PILOT REC/DET


AU 212-11 252-2 CH-1 REC SIG OUT (X)
AU 212-12 252-1 CH-1 REC SIG (G)
AU 212-9 252-4 CH-1 DOLBY SIG IN (X)
AU 212-10 252-3 CH-1 DOLBY SIG OUT (Y)
AU 212-8 252-5 CH-1 DOLBY SIG (G)
AU 212-2 252-11 CH-2 REC SIG OUT (X)
AU 212-1 252-12 CH-2 REC SIG (G)
AU 212-4 252-9 CH-2 DOLBY SIG IN (X)
AU 212-3 252-10 CH-2 DOLBY SIG OUT (Y)
AU 212-5 252-8 CH-2 DOLBY SIG (G)
AU 217-4 251-5 CTL IN (X)
AU 217-5 251-4 CTL IN (G)
AU 217-6 251-3 L:SERVO LOCK ON IN
AU 213-7 253-6 CH-1 DOLBY DET IN (X)
AU 213-8 253-5 CH-1 DOLBY DET IN (G)
AU 213-9 253-4 CH-2 DOLBY DET IN (X)
AU 213-10 253-3 CH-2 DOLBY DET IN (G)
AU-213-6 253-7 H:SP IN
AU 213-3 253-10 H:CH-1 REC IN
AU 213-2 253-11 L:CH-2 EE IN
AU 213-1 253-12 L:CH-1 EE IN
AU 213-12 253-1 H:CH-2 REC IN
AU 213-11 253-2 H:VIDEO MUTE IN
IC1 CX20188 (1/2)
IC1 CX20188 (2/2)
IC2 RC4558D-D (1/2)
IC2 RC4558D-D (2/2)
IC102 RC4558D-D (1/2)
IC102 RC4558D-D (2/2)
Q1 DTA144ES
Q101 DTA144ES
Q201 DTC124ES
Q208 DTA144ES
IC201 MC14013BCP (1/2)
Q204 2SC2785
IC203 TC4071BP (1/4)
IC201 TC4013BP (2/2)
IC3 TC4016BPHB (1/4)
IC3 TC4016BPHB (2/4)
IC3 TC4016BPHB (3/4)
IC103 TC4016BPHB (1/4)
IC103 TC4016BPHB (2/4)
IC103 TC4016BPHB (3/4)
IC103 TC4016BP (4/4)
CP1
CP101
MODE CTRL
REF
MOA
DECODE
HLS
H DET
L DET
LLS
CTRL
VCC
GND
LINE
PB
CAL
TP11
TP12
TP13
TP111
TP112
TP113
TP211
TP212
TP311
TP312
TP313
TP314
TP315
TP316
TP317
E11
E111
RV11:CH-1 EE LINE OUT LEVEL
RV111:CH-2 EE LINE OUT LEVEL
Q301 DTC144ES
Q302 DTC144ES
Q303 DTC144ES
IC310 LM2904S (1/2)
IC310 LM2904S (2/2)
IC302 μPC324C (1/4)
Q304 DTC144ES
IC302 μPC324C (2/4)
IC303 SN16913P
IC304 SN16913P
Q306 2SA1175H
Q307 2SA1175H
IC302 μPC324C (3/4)
IC311 LM2904S (1/2)
IC311 LM2904S (2/2)
Q305 DTC144ES
IC305 SN16913P
IC306 SN16913P
Q308 2SA1175H
Q309 2SA1175H
VCC LOCAL SIG GND OUT
RV311:REC PILOT TONE PHASE
RV312:PB PILOT TONE PHASE
RV313:CH1 PB PILOT TONE
RV314:CH2 PB PILOT TONE
RV315:CH1 DC BALANCE
RV316:CH2 DC BALANCE
RV317:DOLBY DET LEVEL
+12V
+6V
+11.7V
JW119
JW124
JW125
JW130


IC2 RC4558D-D (1/2)
IC2 RC4558D-D (2/2)
Q1 DTA144ES
Q201 DTC124ES
Q208 DTA144ES
IC201 MC14013BCP (1/2)
IC202 RC4558D-D (1/2)
IC202 RC4558D-D (2/2)
Q202 2SC2785H
Q203 2SC2785H
REG +11.7V IN 253-9 AU 213-4
GND 253-8 AU 213-5
CH-1 DOLBY PILOT OUT 00 252-6 AU 212-7
CH-2 DOLBY PILOT OUT 00 252-7 AU 212-6
L:AUDIO MUTE IN 2/2
L:AUDIO MUTE OUT 251-8 AU 217-1
H:DOLBY LED ON IN 251-7 AU 217-2
H:DOLBY SW ON IN 251-6 AU 217-3
H DET
L DET
LLS
VCC
CTRL
TP12
TP112
TP211
TP212
TP312
TP313
TP314
TP315
TP316
TP317
TP318
E11
E111
E211
IC3 TC4016BPHB(3/4)
IC103 TC4016BPHB(3/4)
IC102 RC4558D-D (1/2)
IC102 RC4558D-D (2/2)
Q101 DTA144ES
Q204 2SC2785
IC203 TC4071BP (1/4)
IC201 TC4013BP (2/2)
IC204 TC4011BP (1/4)
IC205 TC4011BP (1/4)
RV211:CH-1 DOLBY PILOT LEVEL
RV212:CH-2 DOLBY PILOT LEVEL
Q205 2SC2878
Q207 2SC2878
Q206 DTA144ES
K-TAPE PB DOLBY DK SELECT
IC3 TC4016BPHP (4/4)
+11.7V
IC302 μPC324C (1/4)
Q304 DTC144ES
IC302 μPC324C (2/4)
IC303 SN16913P
IC304 SN16913P
Q306 2SA1175H
Q307 2SA1175H
IC302 μPC324C (3/4)
IC302 μPC324C (4/4)
IC311 LM2904S (2/2)
IC311 LM2904S (1/2)
Q305 DTC144ES
IC305 SN16913P
IC306 SN16913P
Q308 2SA1175H
Q309 2SA1175H
VCC LOCAL S18 GND OUT
+6V
RV313:CH1 PB PILOT TONE
RV314:CH2 PB PILOT TONE
RV315:CH1 DC BALANCE
RV316:CH2 DC BALANCE
RV317:DOLBY DET LEVEL
203 204 205 3 103
D201 RD6.2ESB
D307 RD6.2ESB

NR-31 (1/2)

1-629-554-11
V0-9850
V0-9850P

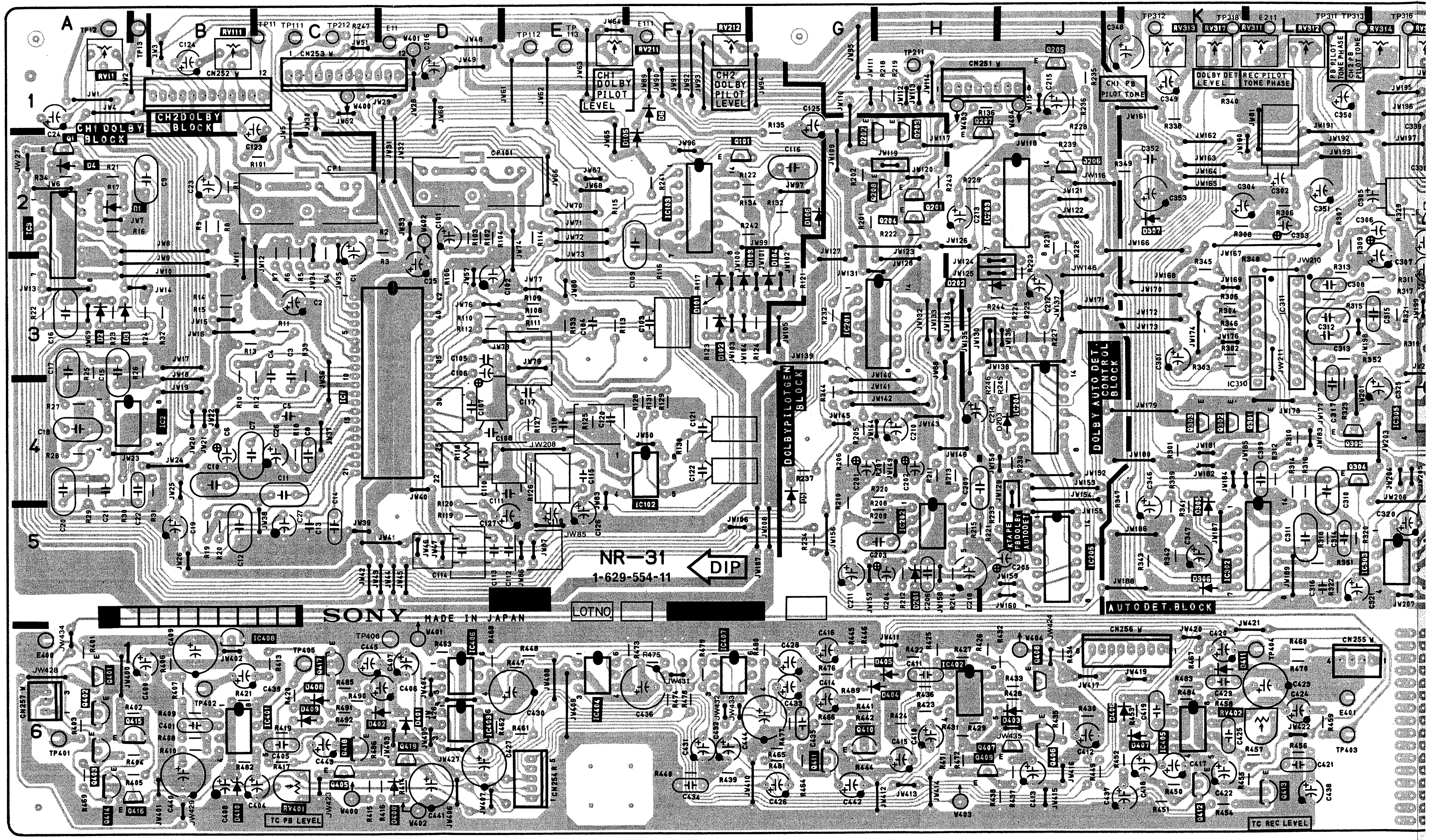
NR-31 (1/2): DOLBY NR, NR PILOT REC/DET

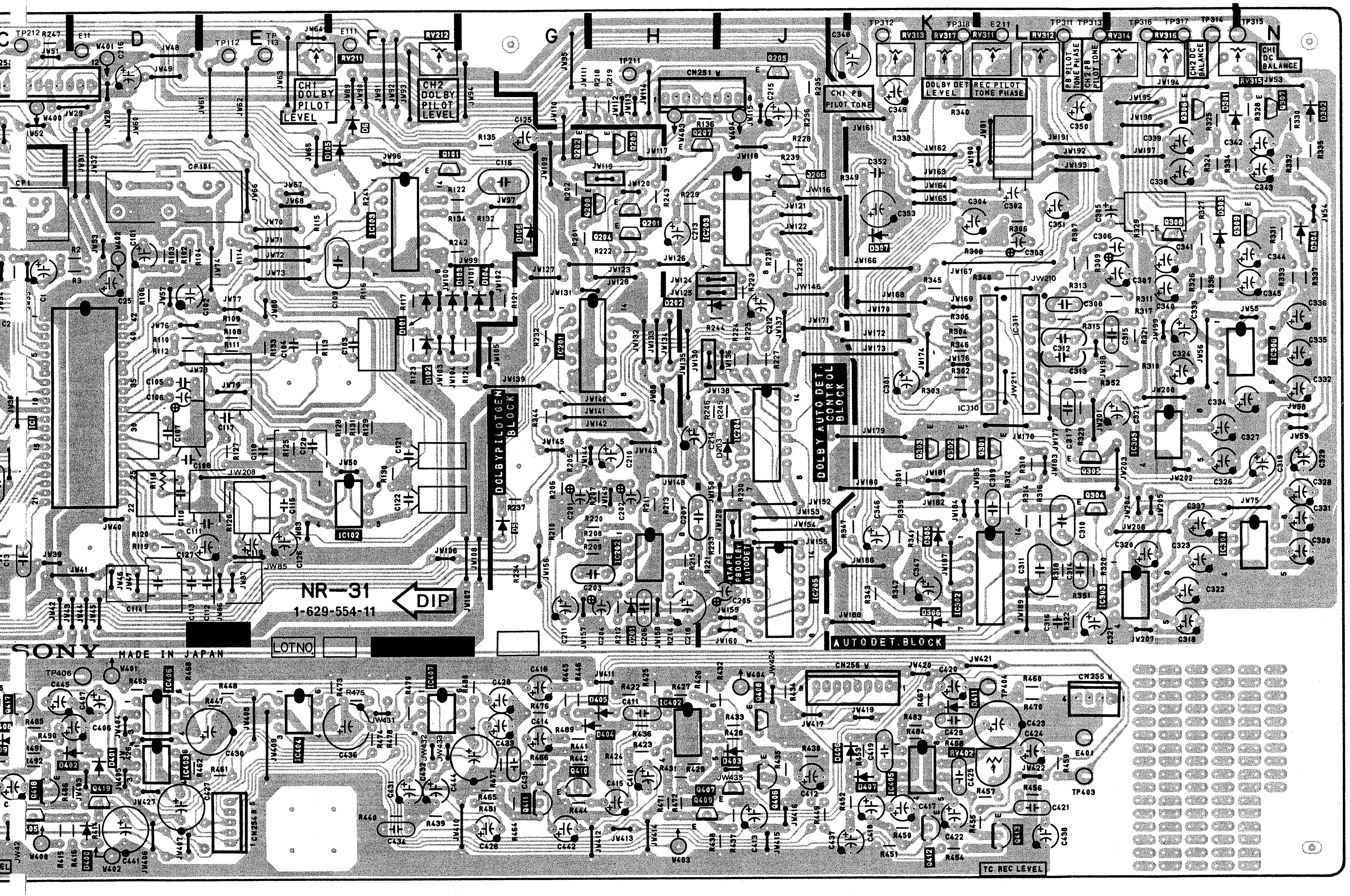
NR-31 (1-629-554-11) C

CN251	H-1
CN252	B-1
CN253	C-1
CN254	E-6
CN255	L-6
CN256	J-6
CN257	A-6
CP1	C-2
CP101	D-2
D1	B-2
D2	A-3
D3	A-3
D4	A-2
D5	G-4
D101	F-3
D102	F-3
D103	F-3
D104	G-3
D105	E-2
D106	G-2
D201	H-5
D202	H-3
D203	J-4
D301	M-1
D302	N-1
D303	M-2
D304	N-2
D305	K-5
D306	K-5
D307	K-2
D400	D-6
D401	D-6
D402	D-6
D403	J-6
D404	H-6
D405	H-6
D406	J-6
D407	K-6
D408	C-6
D409	C-6
D410	B-6
D411	K-6
IC1	C-4
IC2	B-4
IC3	A-2
IC102	F-4
IC103	F-2
IC201	G-3
IC202	H-5
IC203	H-2
IC204	J-4
IC205	J-5
IC302	K-5
IC303	L-5
IC304	M-5
IC305	M-4
IC306	N-3
IC310	K-3
IC311	L-3
IC401	C-6
IC402	H-6
IC403	D-6
IC404	E-6
IC405	K-6
IC406	D-6
IC407	F-6
IC408	C-6
Q1	A-2
Q101	F-2
Q201	H-2
Q202	G-2
Q203	H-2
Q204	H-2
Q205	J-1
Q206	J-2
Q207	H-1
Q208	H-2
Q301	L-4
Q302	K-4
Q303	K-4
Q304	L-4
Q305	L-4
Q306	M-1
Q307	M-1
Q308	M-2
Q309	N-2
Q401	A-6
Q402	A-6
Q403	A-6
Q405	C-6
Q406	J-6
Q407	H-6
Q408	J-6
Q409	H-6
Q410	C-6
Q411	G-6
Q412	K-6
Q413	L-6
Q414	A-6
Q415	B-6
Q416	B-6
Q417	C-6
Q418	G-6
Q419	D-6
RV11	A-1
RV111	B-1
RV211	F-1
RV212	F-1
RV311	L-1
RV312	L-1
RV313	K-1
RV314	M-1
RV315	N-1
RV316	M-1
RV317	K-1
RV401	C-6
RV402	K-6

NR-31 (1-629-554-11) S

D6	F-1
E11	D-1
E111	F-1
E211	L-1
E400	A-6
E401	L-6


A
B
C
D
E
F
G
H
J
K
1
2
3
4
5
6
CH1 DOLBY BLOCK
CH2 DOLBY BLOCK
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
DOLBY PILOT GEN BLOCK
DOLBY AUTO DET. CONTROL BLOCK
AUTO DET. BLOCK
DOLBY DET LEVEL
REC PILOT TONE PHASE
CH1 PB PILOT TONE
NR-31
1-629-554-11
DIP
SONY
MADE IN JAPAN
LOT NO
TC PB LEVEL
TC REC LEVEL
CN251
CN252
CN253
CN254
CN255
CN256
CN257
RV11
RV111
RV211
RV212
RV311
RV312
RV313
RV314
RV316
RV317
RV401
RV402
IC1
IC2
IC3
IC102
IC103
IC401
IC402
IC403
IC404
IC405
IC406
IC407
IC408


NR-31
1-629-554-11
DIP
SONY
MADE IN JAPAN
LOT NO.
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
CH1 PB PILOT TONE
DOLBY DET LEVEL
REC PILOT TONE PHASE
PB PILOT TONE PHASE
CH2 PB PILOT TONE
CH2 DC BALANCE
CH1 DC BALANCE
DOLBY PILOT GEN BLOCK
DOLBY AUTO DET. CONTROL BLOCK
AUTO DET. BLOCK
TC REC LEVEL

NR-31

—COMPONENT SIDE—
1-629-554-11
VO-9850
VO-9850P

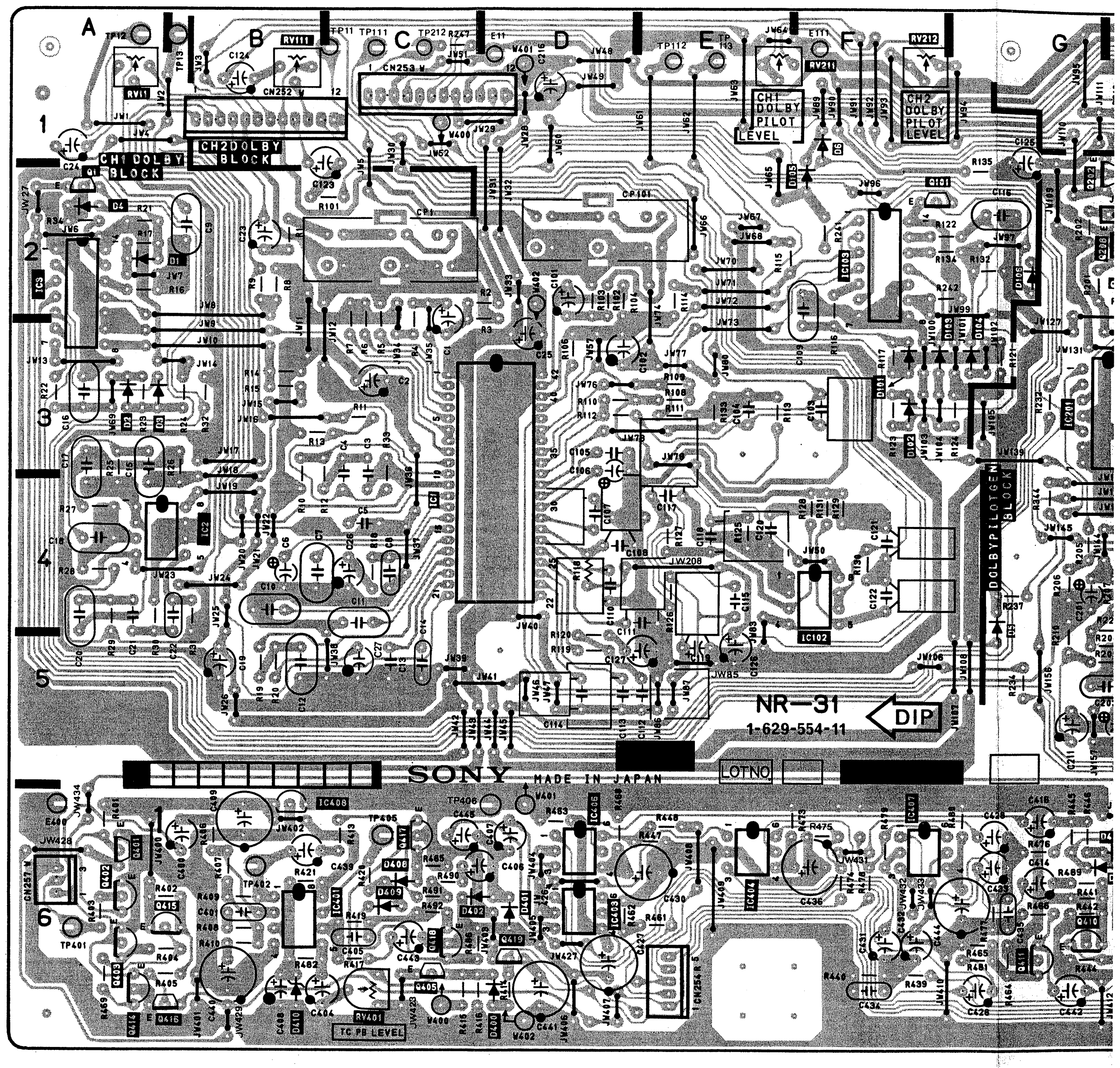
NR-31 (2/2): TC REC/PB AMPLIFIER

NR-31 (1-629-554-11) C

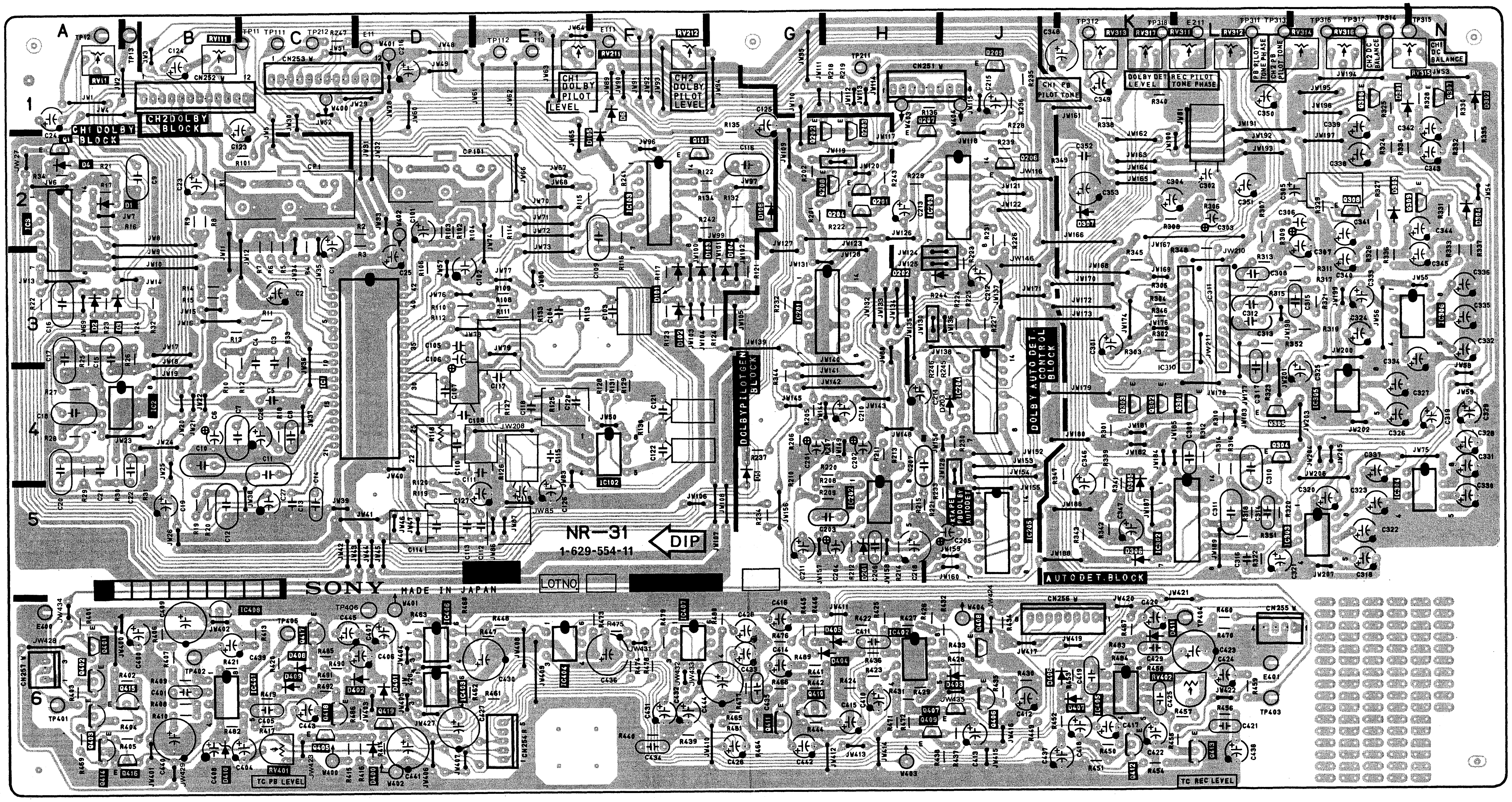
CN251	H-1
CN252	B-1
CN253	C-1
CN254	E-6
CN255	L-6
CN256	J-6
CN257	A-6
CP1	C-2
CP101	D-2
D1	B-2
D2	A-3
D3	A-3
D4	A-2
D5	G-4
D101	F-3
D102	F-3
D103	F-3
D104	G-3
D105	E-2
D106	G-2
D201	H-5
D202	H-3
D203	J-4
D301	M-1
D302	N-1
D303	M-2
D304	N-2
D305	K-5
D306	K-5
D307	K-2
D400	D-6
D401	D-6
D402	D-6
D403	J-6
D404	H-6
D405	H-6
D406	J-6
D407	K-6
D408	C-6
D409	C-6
D410	B-6
D411	K-6
IC1	C-4
IC2	B-4
IC3	A-2
IC102	F-4
IC103	F-2
IC201	G-3
IC202	H-5
IC203	H-2
IC204	J-4
IC205	J-5
IC302	K-5
IC303	L-5
IC304	M-5
IC305	M-4
IC306	N-3
IC310	K-3
IC311	L-3
IC401	C-6
IC402	H-6
IC403	D-6
IC404	E-6
IC405	K-6
IC406	D-6
IC407	F-6
IC408	C-6
Q1	A-2
Q101	F-2
Q201	H-2
Q202	G-2
Q203	H-2
Q204	H-2
Q205	J-1
Q206	J-2
Q207	H-1
Q208	H-2
Q301	L-4
Q302	K-4
Q303	K-4
Q304	L-4
Q305	L-4
Q306	M-1
Q307	M-1
Q308	M-2
Q309	N-2
Q401	A-6
Q402	A-6
Q403	A-6
Q405	C-6
Q406	J-6
Q407	H-6
Q408	J-6
Q409	H-6
Q410	C-6
Q411	G-6
Q412	K-6
Q413	L-6
Q414	A-6
Q415	B-6
Q416	B-6
Q417	C-6
Q418	G-6
Q419	D-6
RV11	A-1
RV111	B-1
RV211	F-1
RV212	F-1
RV311	L-1
RV312	L-1
RV313	K-1
RV314	M-1
RV315	N-1
RV316	M-1
RV317	K-1
RV401	C-6
RV402	K-6

NR-31 (1-629-554-11) S

D6	F-1
E11	D-1
E111	F-1
E211	L-1
E400	A-6
E401	L-6


A
B
C
D
E
F
G
1
2
3
4
5
6
CH1 DOLBY BLOCK
CH2 DOLBY BLOCK
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
DOLBY PILOT GEN BLOCK
NR—31
1-629-554-11
DIP
SONY
MADE IN JAPAN
LOT NO
TC PB LEVEL

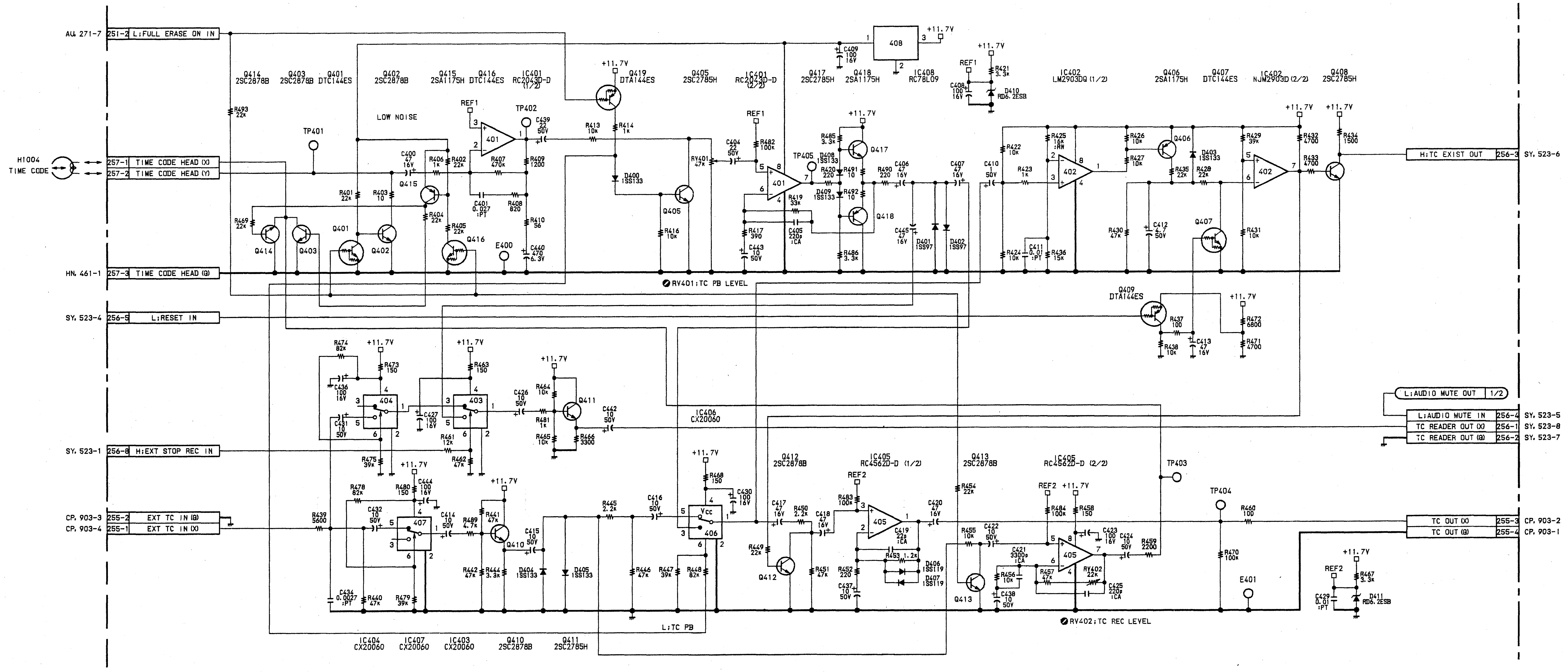
1) S


A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
CH1 DOLBY BLOCK
CH2 DOLBY BLOCK
CH1 DOLBY PILOT LEVEL
CH2 DOLBY PILOT LEVEL
CH1 FG PILOT TONE
DOLBY DET LEVEL
REC PILOT TONE PHASE
FG PILOT TONE PHASE
CH2 FG PILOT TONE
CH2 DC BALANCE
CH1 DC BALANCE
DOLBY PILOT GEN BLOCK
DOLBY AUTO DET CONTROL BLOCK
AUTO DET. BLOCK
NR-31
1-629-554-11
DIP
SONY
MADE IN JAPAN
LOT NO
TC PB LEVEL
TC REC LEVEL

NR-31

—COMPONENT SIDE—
1-629-554-11
VO-9850
VO-9850P

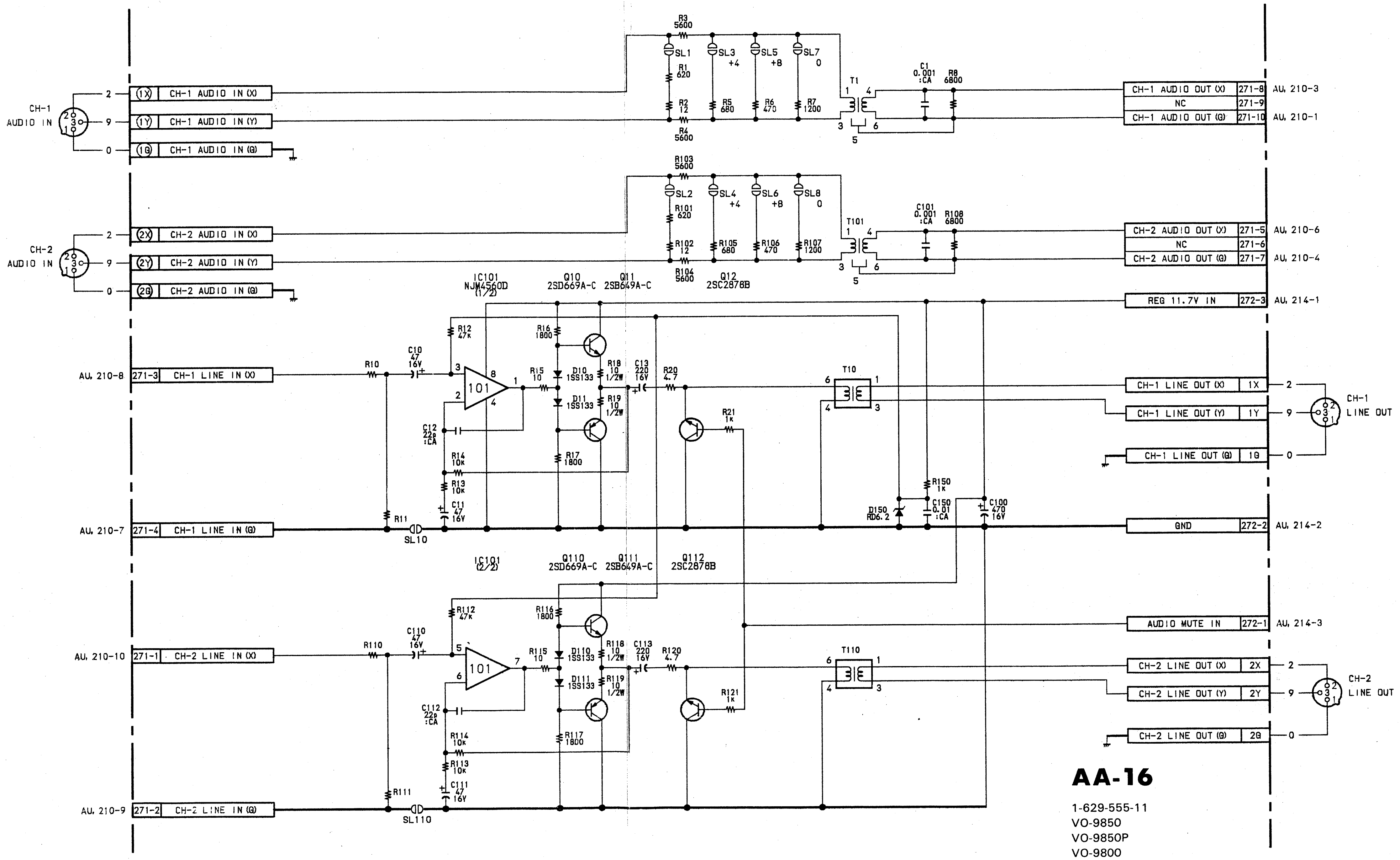
NR-31 (2/2): TC REC/PB AMPLIFIER


AU 271-7
251-2 L:FULL ERASE ON IN
H1004 TIME CODE
257-1 TIME CODE HEAD (X)
257-2 TIME CODE HEAD (Y)
HN 461-1
257-3 TIME CODE HEAD (G)
SY 523-4
256-5 L:RESET IN
SY 523-1
256-8 H:EXT STOP REC IN
CP 903-3
CP 903-4
255-2 EXT TC IN (G)
255-1 EXT TC IN (X)
LOW NOISE
TP401
TP402
TP403
TP404
TP405
E400
E401
RV401:TC PB LEVEL
RV402:TC REC LEVEL
L:TC PB
REF1
REF2
+11.7V
Q414 2SC2878B
Q403 2SC2878B
Q401 DTC144ES
Q402 2SC2878B
Q415 2SA1175H
Q416 DTC144ES
IC401 RC2043D-D (1/2)
Q419 DTA144ES
Q405 2SC2785H
IC401 RC2043D-D (2/2)
Q417 2SC2785H
Q418 2SA1175H
IC408 RC78L09
IC402 LM2903DQ (1/2)
Q406 2SA1175H
Q407 DTC144ES
IC402 NJM2903D (2/2)
Q408 2SC2785H
Q409 DTA144ES
IC406 CX20060
Q412 2SC2878B
IC405 RC4562D-D (1/2)
Q413 2SC2878B
IC405 RC4562D-D (2/2)
IC404 CX20060
IC407 CX20060
IC403 CX20060
Q410 2SC2878B
Q411 2SC2785H
H:TC EXIST OUT
256-3 SY 523-6
L:AUDIO MUTE OUT 1/2
L:AUDIO MUTE IN 256-4 SY 523-5
TC READER OUT (X) 256-1 SY 523-8
TC READER OUT (G) 256-2 SY 523-7
TC OUT (X) 255-3 CP 903-2
TC OUT (G) 255-4 CP 903-1

NR-31 (2/2)

1-629-554-11
VO-9850
VO-9850P

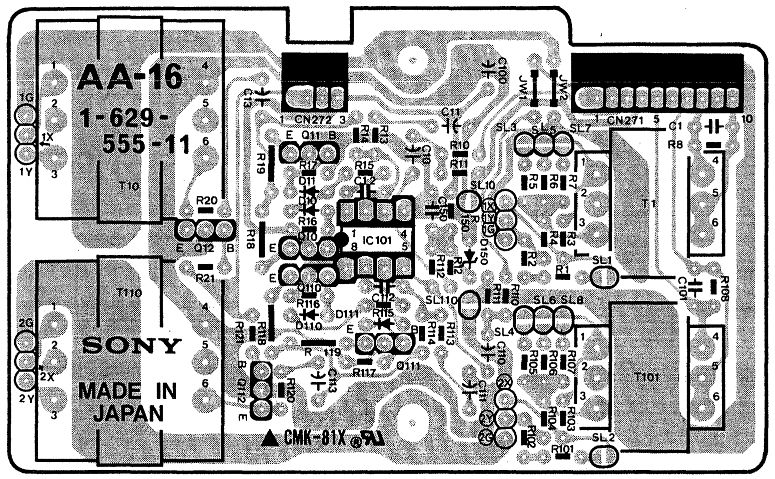
AA-16: CONNECTOR


CH-1 AUDIO IN
CH-2 AUDIO IN
CH-1 AUDIO IN (X)
CH-1 AUDIO IN (Y)
CH-1 AUDIO IN (G)
CH-2 AUDIO IN (X)
CH-2 AUDIO IN (Y)
CH-2 AUDIO IN (G)
AU, 210-8
271-3
CH-1 LINE IN (X)
AU, 210-7
271-4
CH-1 LINE IN (G)
AU, 210-10
271-1
CH-2 LINE IN (X)
AU, 210-9
271-2
CH-2 LINE IN (G)
R3 5600
SL1
SL3 +4
SL5 +8
SL7 0
R1 620
R2 12
R5 680
R6 470
R7 1200
R4 5600
T1
C1 0.001 :CA
R8 6800
R103 5600
SL2
SL4 +4
SL6 +8
SL8 0
R101 620
R102 12
R105 680
R106 470
R107 1200
R104 5600
T101
C101 0.001 :CA
R108 6800
IC101 NJM4560D (1/2)
Q10 2SD669A-C
Q11 2SB649A-C
Q12 2SC2878B
R12 47k
R16 1800
R10
C10 47 16V
R15 10
D10 1SS133
D11 1SS133
R18 10 1/2W
R19 10 1/2W
C13 220 16V
R20 4.7
C12 22p :CA
R14 10k
R13 10k
C11 47 16V
R17 1800
R21 1k
R11
SL10
T10
R150 1k
D150 RD6.2
C150 0.01 :CA
C100 470 16V
IC101 (2/2)
Q110 2SD669A-C
Q111 2SB649A-C
Q112 2SC2878B
R112 47k
R116 1800
R110
C110 47 16V
R115 10
D110 1SS133
D111 1SS133
R118 10 1/2W
R119 10 1/2W
C113 220 16V
R120 4.7
C112 22p :CA
R114 10k
R113 10k
C111 47 16V
R117 1800
R121 1k
R111
SL110
T110
CH-1 AUDIO OUT (X) 271-8 AU, 210-3
NC 271-9
CH-1 AUDIO OUT (G) 271-10 AU, 210-1
CH-2 AUDIO OUT (X) 271-5 AU, 210-6
NC 271-6
CH-2 AUDIO OUT (G) 271-7 AU, 210-4
REG 11.7V IN 272-3 AU, 214-1
CH-1 LINE OUT (X) 1X
CH-1 LINE OUT (Y) 1Y
CH-1 LINE OUT (G) 1G
CH-1 LINE OUT
GND 272-2 AU, 214-2
AUDIO MUTE IN 272-1 AU, 214-3
CH-2 LINE OUT (X) 2X
CH-2 LINE OUT (Y) 2Y
CH-2 LINE OUT (G) 2G
CH-2 LINE OUT

AA-16

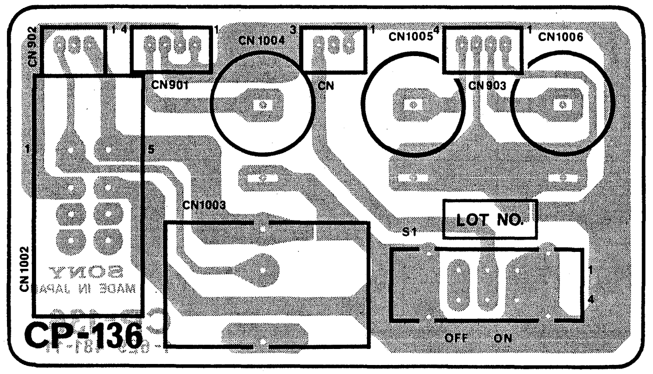
1-629-555-11
VO-9850
VO-9850P
VO-9800
VO-9800P

AA-16: CONNECTOR
CP-136: MONITOR OUT


AA-16
1-629-555-11
SONY
MADE IN JAPAN
CMK-81X
CN272
CN271
IC101
T10
T110
T1
T101
Q11
Q12
Q111
Q112
D110
D111
D150
SL1
SL2
SL3
SL4
SL5
SL6
SL7
SL8
SL10
SL110
JW1
JW2
C1
C11
C100
C101
C110
C111
R8
R10
R11
R20
R21
R101
R117
1G
1X
1Y
2G
2X
2Y

AA-16

—COMPONENT SIDE—
1-629-555-11
VO-9850
VO-9850P
VO-9800
VO-9800P


CP-136
CN902
CN901
CN1002
CN1003
CN1004
CN1005
CN1006
CN903
CN
LOT NO.
S1
OFF
ON
SONY
MADE IN JAPAN

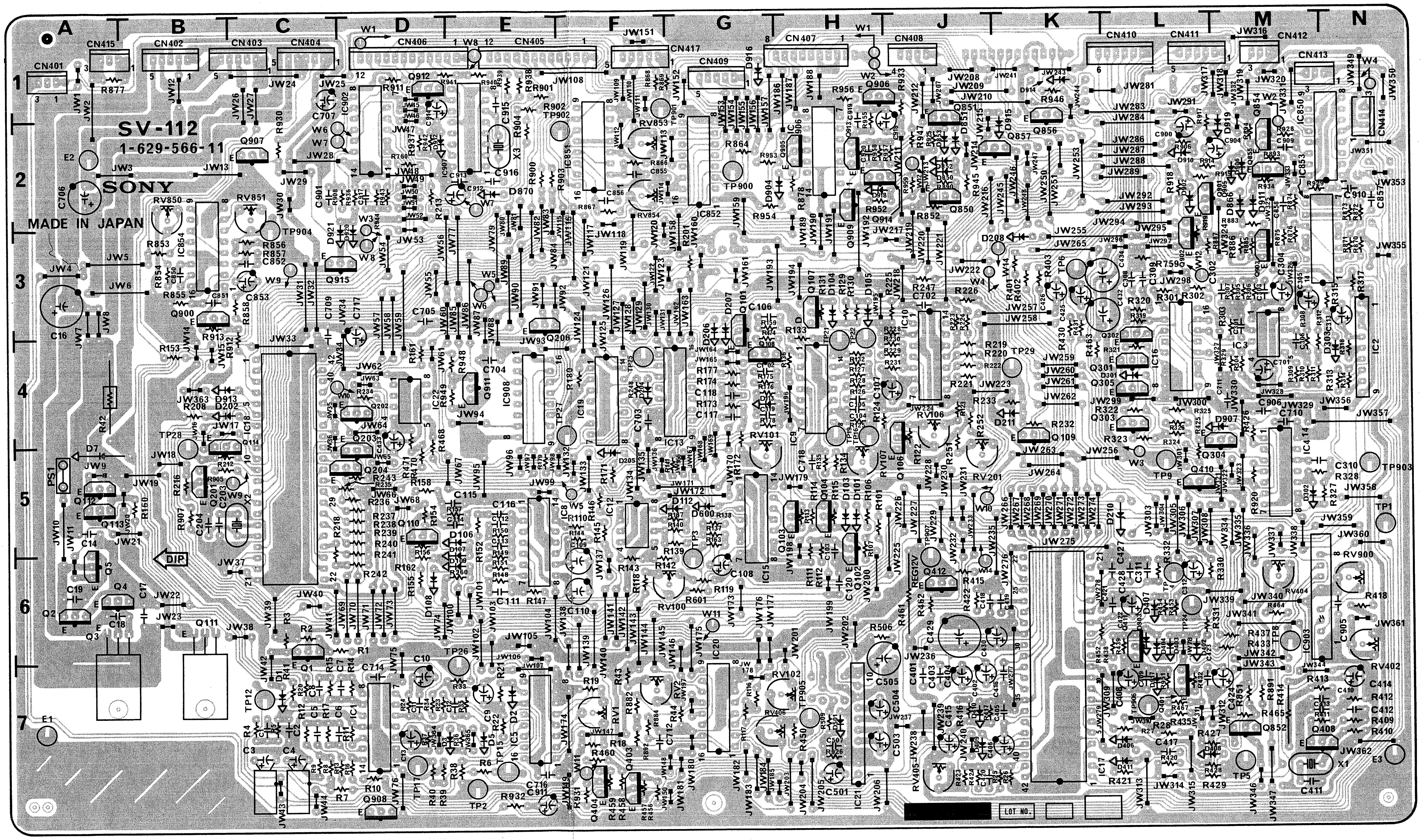
CP-136

—COMPONENT SIDE—
1-629-481-11
VO-9850
VO-9850P
VO-9800
VO-9800P

SV-112 (1/2): DRUM/CAPSTAN SERVO

SV-112 (1-629-566-11) C

Ref.	Location
CN401	A-1
CN402	B-1
CN403	C-1
CN404	C-1
CN405	E-1
CN406	D-1
CN407	H-1
CN408	J-1
CN409	G-1
CN410	L-1
CN411	L-1
CN412	M-1
CN413	M-1
CN414	N-2
CN415	A-1
CN417	G-1
D1	C-7
D2	E-7
D3	D-7
D5	E-7
D7	A-4
D101	H-5
D103	H-5
D104	H-3
D105	H-3
D106	E-5
D107	E-5
D108	D-6
D109	E-5
D112	G-5
D113	G-4
D202	B-4
D204	F-4
D205	F-5
D206	G-3
D207	G-3
D208	K-3
D210	L-5
D211	K-4
D301	L-4
D302	M-5
D303	N-4
D402	L-6
D403	L-6
D404	L-6
D406	L-7
D407	L-6
D408	L-7
D409	J-7
D410	J-7
D411	L-7
D501	H-7
D600	G-5
D850	J-2
D851	J-2
D852	J-2
D853	J-2
D866	M-2
D870	E-2
D902	L-2
D903	L-6
D904	G-2
D905	M-2
D906	M-2
D907	M-4
D910	L-2
D911	M-2
D912	D-2
D913	B-4
D914	K-1
D915	K-2
D916	G-1
D917	L-7
D918	H-2
D919	M-2
D920	D-2
D921	C-2
IC1	D-7
IC2	N-2
IC3	M-4
IC4	M-5
IC5	E-7
IC8	F-5
IC9	H-4
IC10	J-4
IC12	F-5
IC13	G-4
IC15	G-6
IC16	L-4
IC17	K-7
IC18	C-4
IC19	F-4
IC20	G-6
IC21	H-7
IC22	D-4
IC850	M-1
IC851	F-2
IC852	G-2
IC853	M-2
IC854	B-3
IC902	D-1
IC903	M-6
IC906	H-2
IC907	E-2
IC908	E-4
Q1	C-7
Q2	A-6
Q3	A-6
Q4	A-6
Q5	A-6
Q101	G-3
Q102	H-6
Q103	H-5
Q104	H-5
Q106	J-5
Q107	H-3
Q108	G-4
Q109	K-4
Q110	D-5
Q111	B-6
Q112	A-5
Q113	A-5
Q114	C-4
Q201	B-5
Q202	D-4
Q203	D-4
Q204	D-5
Q206	F-3
Q301	L-4
Q302	L-4
Q303	L-4
Q304	L-5
Q305	L-4
Q401	L-7
Q403	F-7
Q404	F-4
Q408	M-7
Q410	L-5
Q411	L-6
Q412	J-6
Q850	J-2
Q851	J-1
Q852	M-7
Q854	M-1
Q855	M-2
Q856	K-2
Q857	K-2
Q900	B-3
Q901	M-2
Q902	L-3
Q903	M-3
Q905	H-2
Q906	H-1
Q907	C-2
Q908	D-7
Q909	H-3
Q911	E-4
Q912	D-1
Q913	H-2
Q914	H-2
Q915	H-2
RV1	F-7
RV2	G-7
RV100	F-6
RV101	G-4
RV102	H-7
RV106	J-4
RV107	H-5
RV201	J-5
RV402	N-7
RV404	M-6
RV405	J-7
RV406	G-7
RV850	B-2
RV851	C-2
RV853	F-2
RV854	F-2
RV900	N-6
X1	N-7
X2	C-5
X3	E-2



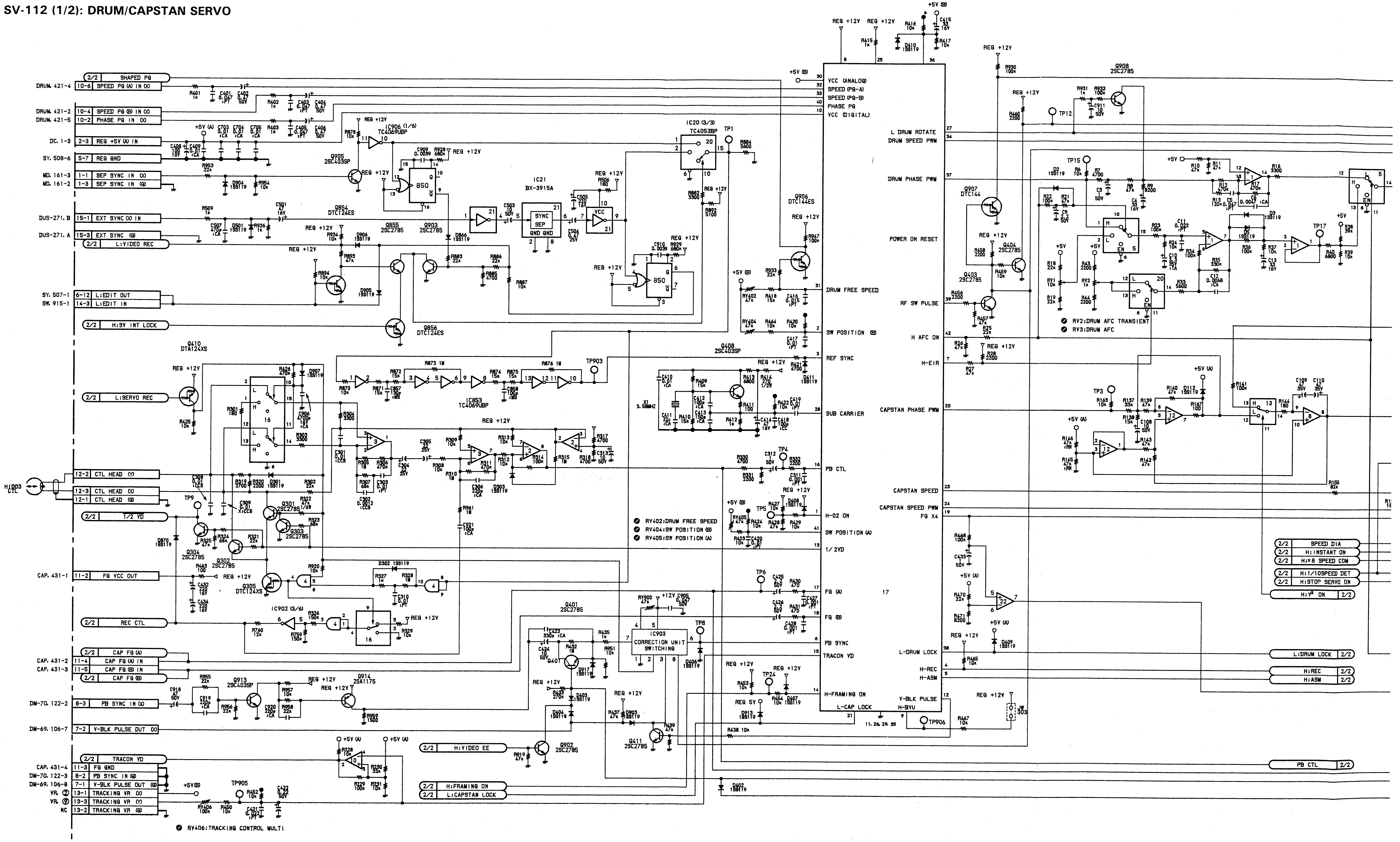
SV-112 (1-629-566-11) S

Ref.	Location
E1	A-7
E2	A-2
E3	N-7

SV-112

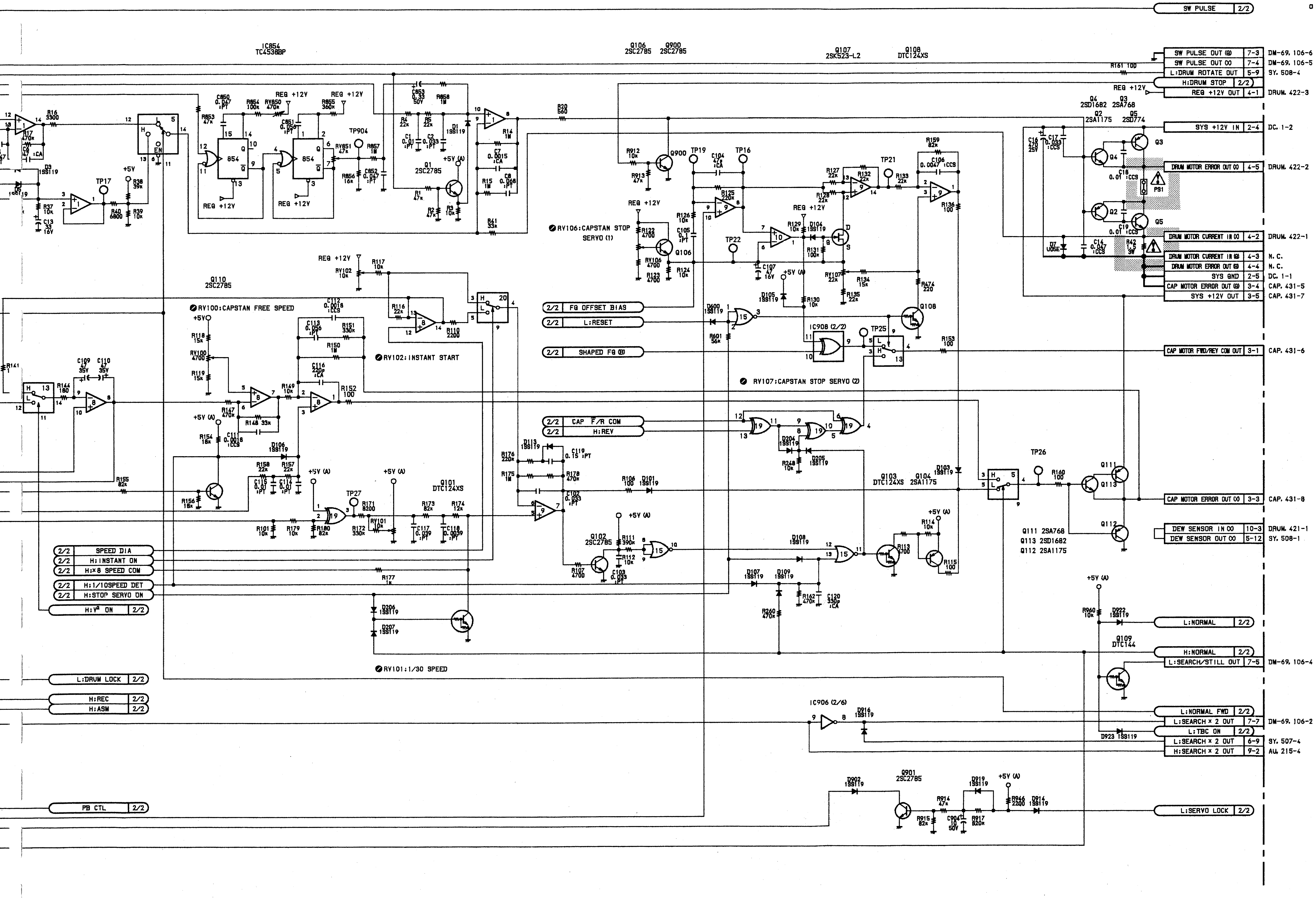
—COMPONENT SIDE—
1-629-566-11
VO-9850

SV-112 (1/2): DRUM/CAPSTAN SERVO


DRUM. 421-4
10-6 SPEED PG (A) IN (X)
2/2 SHAPED PG
DRUM. 421-2
10-4 SPEED PG (B) IN (X)
DRUM. 421-5
10-2 PHASE PG IN (X)
DC. 1-3
2-3 REG +5V (A) IN
SY. 508-6
5-7 REG GND
MD. 161-3
1-1 SEP SYNC IN (X)
MD. 161-2
1-3 SEP SYNC IN (G)
DUS-271. B
15-1 EXT SYNC (X) IN
DUS-271. A
15-3 EXT SYNC (G)
2/2 L:VIDEO REC
SY. 507-1
6-12 L:EDIT OUT
SW. 915-1
14-3 L:EDIT IN
2/2 H:SV INT LOCK
2/2 L:SERVO REC
H1003 CTL
12-2 CTL HEAD (Y)
12-3 CTL HEAD (X)
12-1 CTL HEAD (G)
2/2 1/2 VD
CAP. 431-1
11-2 FG VCC OUT
2/2 REC CTL
2/2 CAP FG (A)
CAP. 431-2
11-4 CAP FG (A) IN
CAP. 431-3
11-5 CAP FG (B) IN
2/2 CAP FG (B)
DM-70. 122-2
8-3 PB SYNC IN (X)
DM-69. 106-7
7-2 V-BLK PULSE OUT (X)
2/2 TRACON VD
CAP. 431-4
11-3 FG GND
DM-70. 122-3
8-2 PB SYNC IN (G)
DM-69. 106-8
7-1 V-BLK PULSE OUT (G)
VR. ②
13-1 TRACKING VR (X)
VR. ③
13-3 TRACKING VR (Y)
NC
13-2 TRACKING VR (G)
RV406:TRACKING CONTROL MULTI
IC906 (1/6) TC4069UBP
Q905 2SC403SP
IC21 BX-3915A
SYNC SEP
GND GND
VCC
IC20 (3/3) TC4053BP
TP1
Q854 DTC124ES
Q855 2SC2785
Q903 2SC2785
Q856 DTC124ES
Q410 DTA124XS
IC853 TC4069UBP
TP903
TP9
Q304 2SC2785
Q302 2SC2785
Q301 2SC2785
Q303 2SC2785
Q305 DTC124XS
IC902 (3/6)
D302 1SS119
Q913 2SC403SP
Q914 2SA1175
TP905
Q401 2SC2785
IC903 CORRECTION UNIT SWITCHING
Q902 2SC2785
2/2 H:VIDEO EE
2/2 H:FRAMING ON
2/2 L:CAPSTAN LOCK
Q411 2SC2785
TP8
RV900
Q408 2SC403SP
X1 3.58MHz
Q906 DTC144ES
RV402:DRUM FREE SPEED
RV404:SW POSITION (B)
RV405:SW POSITION (A)
TP4
TP5
TP6
TP24
VCC (ANALOG)
SPEED (PG-A)
SPEED (PG-B)
PHASE PG
VCC (DIGITAL)
DRUM FREE SPEED
SW POSITION (B)
REF SYNC
SUB CARRIER
PB CTL
H-02 ON
SW POSITION (A)
1/2VD
FG (A)
FG (B)
PB SYNC
TRACON VD
H-FRAMING ON
L-CAP LOCK
H-BVU
V-BLK PULSE
L DRUM ROTATE
DRUM SPEED PWM
DRUM PHASE PWM
POWER ON RESET
RF SW PULSE
H AFC ON
H-EIR
CAPSTAN PHASE PWM
CAPSTAN SPEED
CAPSTAN SPEED PWM
FG X4
L-DRUM LOCK
H-REC
H-ASM
TP906
Q908 2SC2785
TP12
TP15
Q907 DTC144
Q404 2SC2785
Q403 2SC2785
RV2:DRUM AFC TRANSIENT
RV3:DRUM AFC
TP17
TP3
2/2 SPEED DIA
2/2 H:INSTANT ON
2/2 H:×8 SPEED COM
2/2 H:1/10SPEED DET
2/2 H:STOP SERVO ON
H:V² ON 2/2
L:DRUM LOCK 2/2
H:REC 2/2
H:ASM 2/2
PB CTL 2/2
D402 1SS119
REG +12V
+5V (A)
+5V (B)

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

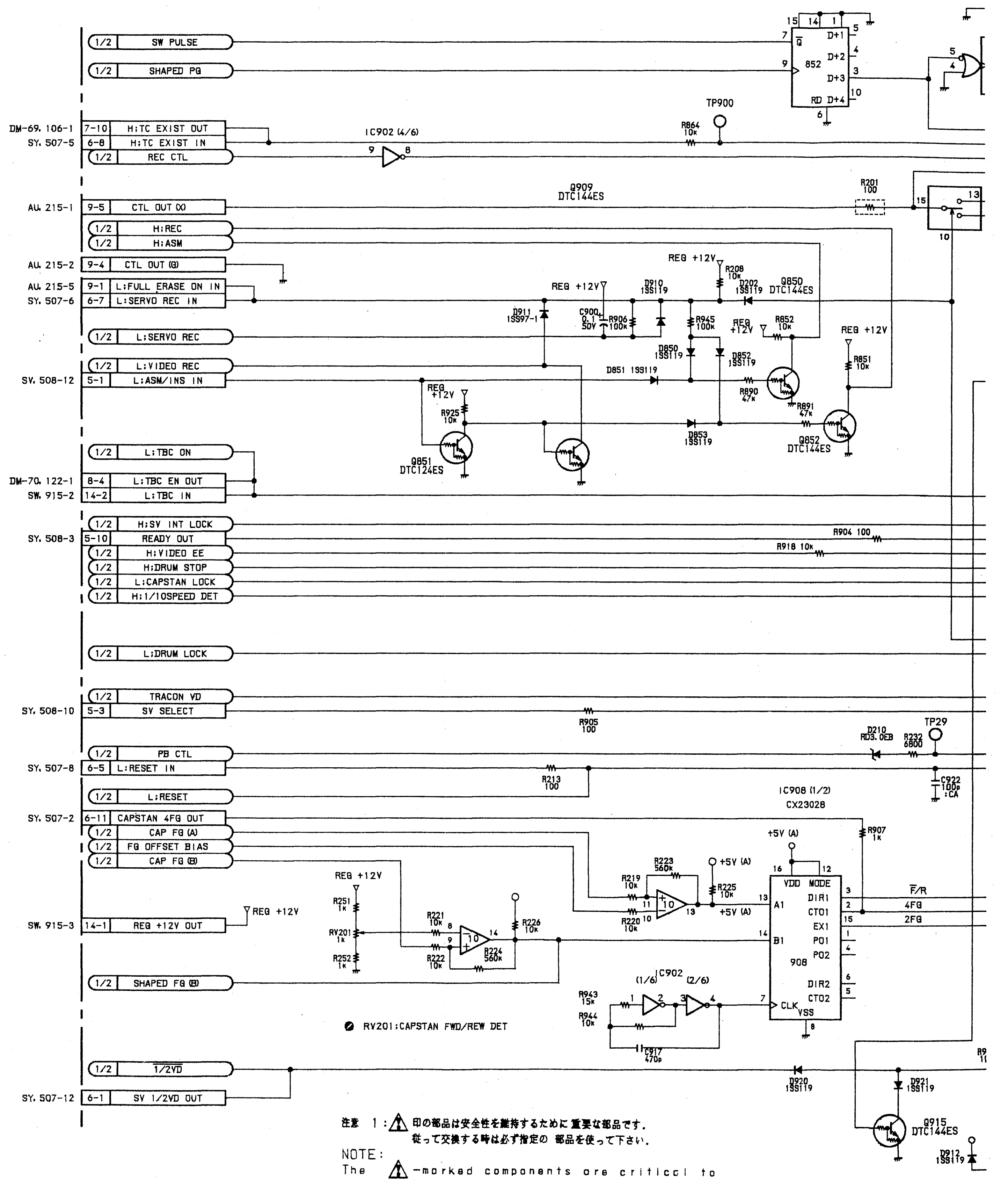
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.


SW PULSE 2/2
SW PULSE OUT (G) 7-3 DM-69, 106-6
SW PULSE OUT (X) 7-4 DM-69, 106-5
L:DRUM ROTATE OUT 5-9 SY, 508-4
H:DRUM STOP 2/2
REG +12V OUT 4-1 DRUM, 422-3
SYS +12V IN 2-4 DC, 1-2
DRUM MOTOR ERROR OUT (X) 4-5 DRUM, 422-2
DRUM MOTOR CURRENT IN (X) 4-2 DRUM, 422-1
DRUM MOTOR CURRENT IN (G) 4-3 N. C.
DRUM MOTOR ERROR OUT (G) 4-4 N. C.
SYS GND 2-5 DC, 1-1
CAP MOTOR ERROR OUT (G) 3-4 CAP, 431-5
SYS +12V OUT 3-5 CAP, 431-7
CAP MOTOR FWD/REV COM OUT 3-1 CAP, 431-6
CAP MOTOR ERROR OUT (X) 3-3 CAP, 431-8
DEW SENSOR IN (X) 10-3 DRUM, 421-1
DEW SENSOR OUT (X) 5-12 SY, 508-1
L:NORMAL 2/2
H:NORMAL 2/2
L:SEARCH/STILL OUT 7-5 DM-69, 106-4
L:NORMAL FWD 2/2
L:SEARCH × 2 OUT 7-7 DM-69, 106-2
L:TBC ON 2/2
L:SEARCH × 2 OUT 6-9 SY, 507-4
H:SEARCH × 2 OUT 9-2 AU, 215-4
L:SERVO LOCK 2/2
IC854 TC4538BP
Q106 2SC2785
Q900 2SC2785
Q107 2SK523-L2
Q108 DTC124XS
Q4 2SD1682
Q3 2SA768
Q2 2SA1175
Q5 2SD774
PS1
R42 1.5 3W
Q110 2SC2785
Q1 2SC2785
RV100:CAPSTAN FREE SPEED
RV102:INSTANT START
RV106:CAPSTAN STOP SERVO (1)
RV107:CAPSTAN STOP SERVO (2)
RV101:1/30 SPEED
FG OFFSET BIAS 2/2
L:RESET 2/2
SHAPED FG (B) 2/2
CAP F/R COM 2/2
H:REV 2/2
IC908 (2/2)
Q101 DTC124XS
Q102 2SC2785
Q103 DTC124XS
Q104 2SA1175
Q111 2SA768
Q113 2SD1682
Q112 2SA1175
Q109 DTC144
SPEED DIA 2/2
H:INSTANT ON 2/2
H:×8 SPEED COM 2/2
H:1/10SPEED DET 2/2
H:STOP SERVO ON 2/2
H:V² ON 2/2
L:DRUM LOCK 2/2
H:REC 2/2
H:ASM 2/2
PB CTL 2/2
IC906 (2/6)
Q901 2SC2785
TP904
TP17
TP19
TP16
TP21
TP22
TP25
TP26
TP27
REG +12V
+5V (A)

SV-112 (1/2)

1-629-566-11
VO-9850

SV-112 (2/2): SERVO CONTROL


1/2 SW PULSE
1/2 SHAPED PG
IC852 TC4015BP
TP900
R864 10k
DM-69, 106-1 7-10 H:TC EXIST OUT
SY, 507-5 6-8 H:TC EXIST IN
1/2 REC CTL
IC902 (4/6)
AU, 215-1 9-5 CTL OUT (X)
Q909 DTC144ES
R201 100
1/2 H:REC
1/2 H:ASM
AU, 215-2 9-4 CTL OUT (G)
AU, 215-5 9-1 L:FULL ERASE ON IN
SY, 507-6 6-7 L:SERVO REC IN
1/2 L:SERVO REC
1/2 L:VIDEO REC
SY, 508-12 5-1 L:ASM/INS IN
REG +12V
D911 1SS97-1
C900 0.1 50V
R906 100k
D910 1SS119
R208 10k
D202 1SS119
Q850 DTC144ES
R945 100k
R852 10k
R851 10k
D850 1SS119
D852 1SS119
D851 1SS119
R890 47k
R891 47k
D853 1SS119
Q852 DTC144ES
R925 10k
Q851 DTC124ES
1/2 L:TBC ON
DM-70, 122-1 8-4 L:TBC EN OUT
SW, 915-2 14-2 L:TBC IN
1/2 H:SV INT LOCK
SY, 508-3 5-10 READY OUT
1/2 H:VIDEO EE
1/2 H:DRUM STOP
1/2 L:CAPSTAN LOCK
1/2 H:1/10SPEED DET
R904 100
R918 10k
1/2 L:DRUM LOCK
1/2 TRACON VD
SY, 508-10 5-3 SV SELECT
R905 100
D210 RD3.0EB
R232 6800
TP29
1/2 PB CTL
SY, 507-8 6-5 L:RESET IN
R213 100
C922 100p :CA
1/2 L:RESET
IC908 (1/2) CX23028
SY, 507-2 6-11 CAPSTAN 4FG OUT
1/2 CAP FG (A)
1/2 FG OFFSET BIAS
1/2 CAP FG (B)
+5V (A)
R907 1k
R223 560k
R225 10k
R219 10k
R220 10k
VDD MODE DIR1 CTO1 EX1 PO1 PO2 908 DIR2 CTO2 CLK VSS
F/R
4FG
2FG
REG +12V
R251 1k
RV201 1k
R252 1k
R221 10k
R222 10k
R226 10k
R224 560k
SW, 915-3 14-1 REG +12V OUT
1/2 SHAPED FG (B)
IC902 (1/6) (2/6)
R943 15k
R944 10k
C917 470p
RV201:CAPSTAN FWD/REW DET
1/2 1/2VD
SY, 507-12 6-1 SV 1/2VD OUT
D920 1SS119
D921 1SS119
Q915 DTC144ES
D912 1SS119

注意 1：⚠ 印の部品は安全性を維持するために重要な部品です。
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NOTE:
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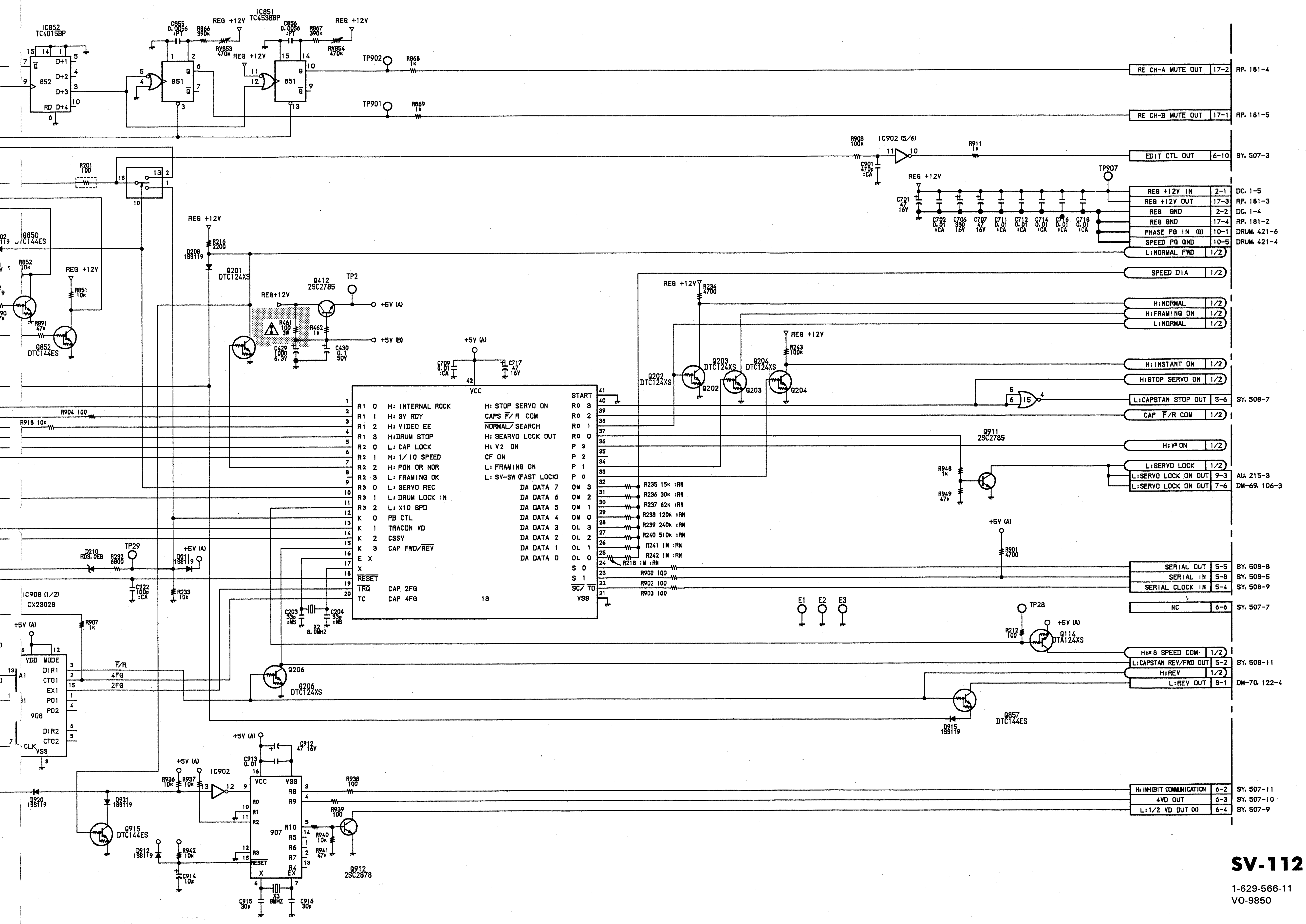
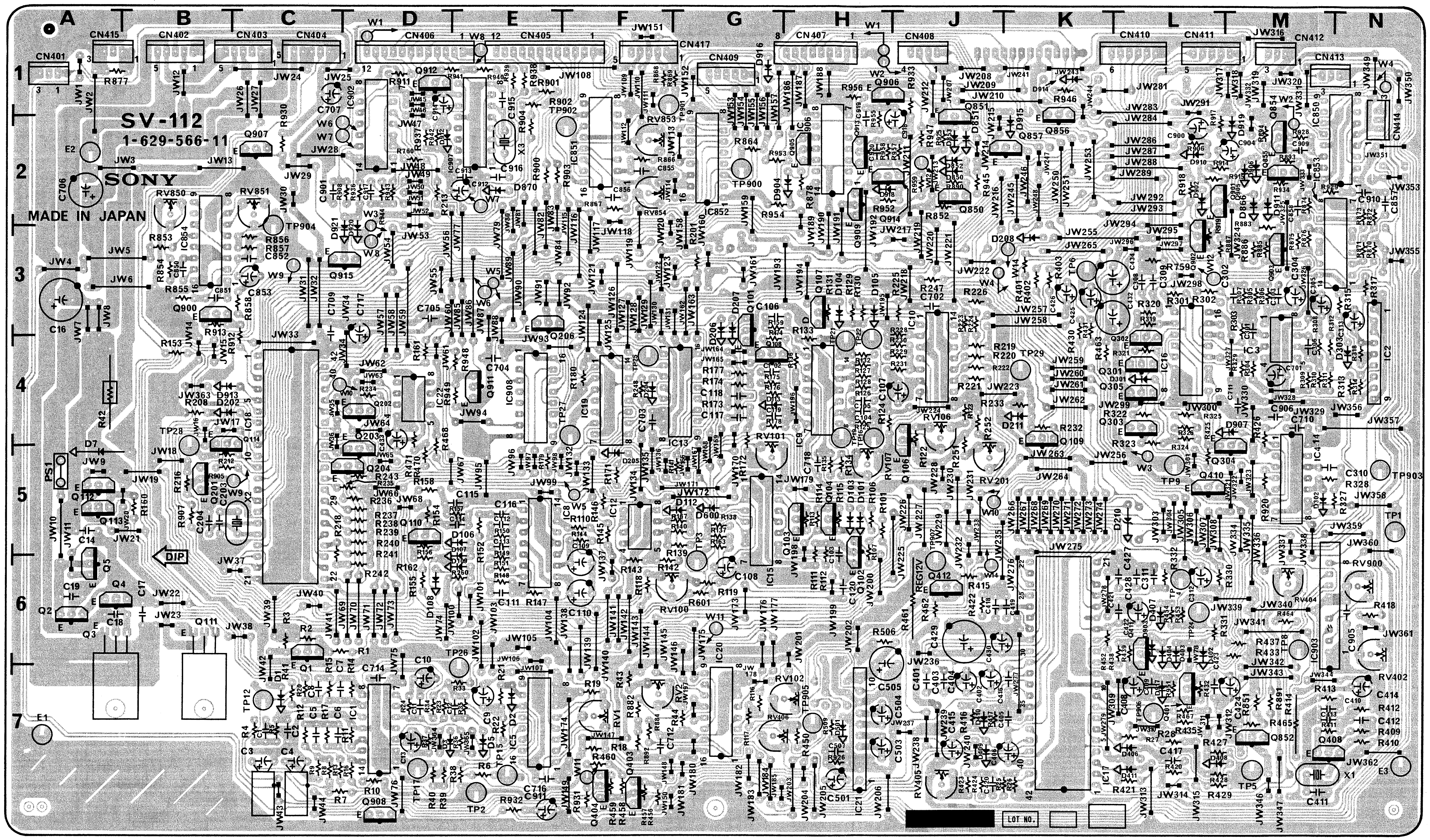

IC852 TC4015BP
IC851 TC4538BP
REG +12V
RV853 470k
RV854 470k
R866 390k
R867 390k
C855 0.0056 :PT
C856 0.0056 :PT
TP902
TP901
R868 1k
R869 1k
RE CH-A MUTE OUT 17-2 RP. 181-4
RE CH-B MUTE OUT 17-1 RP. 181-5
R908 100k
IC902 (5/6)
C901 470p :CA
R911 1k
EDIT CTL OUT 6-10 SY. 507-3
TP907
C701 47 16V
C702 0.01 :CA
C706 330 16V
C707 47 16V
C711 0.01 :CA
C712 0.01 :CA
C714 0.01 :CA
C716 0.01 :CA
C718 0.01 :CA
REG +12V IN 2-1 DC. 1-5
REG +12V OUT 17-3 RP. 181-3
REG GND 2-2 DC. 1-4
REG GND 17-4 RP. 181-2
PHASE PG IN (G) 10-1 DRUM. 421-6
SPEED PG GND 10-5 DRUM. 421-4
L:NORMAL FWD 1/2
SPEED DIA 1/2
H:NORMAL 1/2
H:FRAMING ON 1/2
L:NORMAL 1/2
H:INSTANT ON 1/2
H:STOP SERVO ON 1/2
L:CAPSTAN STOP OUT 5-6 SY. 508-7
CAP F/R COM 1/2
H:V2 ON 1/2
L:SERVO LOCK 1/2
L:SERVO LOCK ON OUT 9-3 AU. 215-3
L:SERVO LOCK ON OUT 7-6 DM-69. 106-3
SERIAL OUT 5-5 SY. 508-8
SERIAL IN 5-8 SY. 508-5
SERIAL CLOCK IN 5-4 SY. 508-9
NC 6-6 SY. 507-7
H:×8 SPEED COM 1/2
L:CAPSTAN REV/FWD OUT 5-2 SY. 508-11
H:REV 1/2
L:REV OUT 8-1 DM-70. 122-4
H:INHIBIT COMMUNICATION 6-2 SY. 507-11
4VD OUT 6-3 SY. 507-10
L:1/2 VD OUT 00 6-4 SY. 507-9
R201 100
Q850 DTC144ES
R852 10k
R851 10k
R891 47k
Q852 DTC144ES
R216 2200
D208 1SS119
Q201 DTC124XS
Q412 2SC2785
TP2
+5V (A)
+5V (B)
R461 100 3W
R462 1k
C429 1000 6.3V
C430 0.1 50V
C709 0.01 :CA
C717 47 16V
R234 4700
R243 100k
Q202 DTC124XS
Q203 DTC124XS
Q204 DTC124XS
Q911 2SC2785
R948 1k
R949 47k
R901 4700
VCC
START
R1 0 H: INTERNAL ROCK
R1 1 H: SV RDY
R1 2 H: VIDEO EE
R1 3 H:DRUM STOP
R2 0 L: CAP LOCK
R2 1 H: 1/10 SPEED
R2 2 H: PON OR NOR
R2 3 L: FRAMING OK
R3 0 L: SERVO REC
R3 1 L: DRUM LOCK IN
R3 2 L: X10 SPD
K 0 PB CTL
K 1 TRACON VD
K 2 CSSV
K 3 CAP FWD/REV
E X
X
RESET
IRQ CAP 2FG
TC CAP 4FG
H: STOP SERVO ON RO 3
CAPS F/R COM RO 2
NORMAL/SEARCH RO 1
H: SEARVO LOCK OUT RO 0
H: V2 ON P 3
CF ON P 2
L: FRAMING ON P 1
L: SV-SW (FAST LOCK) P 0
DA DATA 7 OM 3
DA DATA 6 OM 2
DA DATA 5 OM 1
DA DATA 4 OM 0
DA DATA 3 OL 3
DA DATA 2 OL 2
DA DATA 1 OL 1
DA DATA 0 OL 0
S O
S I
SC/TO
VSS
R235 15k :RN
R236 30k :RN
R237 62k :RN
R238 120k :RN
R239 240k :RN
R240 510k :RN
R241 1M :RN
R242 1M :RN
R218 1M :RN
R900 100
R902 100
R903 100
R904 100
R918 10k
C203 33p :MS
C204 33p :MS
X2 8.0MHz
E1 E2 E3
TP28
R212 100
Q114 DTA124XS
D210 RD3.0EB
R232 6800
TP29
D211 1SS119
C922 100p :CA
R233 10k
IC908 (1/2) CX23028
R907 1k
VDD MODE DIR1 CTO1 EX1 PO1 PO2 DIR2 CTO2 CLK VSS
908
F/R
4FG
2FG
Q206 DTC124XS
Q657 DTC144ES
D915 1SS119
+5V (A)
C912 47 16V
C913 0.01
R936 10k
R937 10k
IC902
907
R938 100
R939 100
R940 10k
R941 47k
Q912 2SC2878
D920 1SS119
D921 1SS119
Q915 DTC144ES
D912 1SS119
R942 10k
C914 10μ
C915 30p
X3 8MHz
C916 30p

SV-112 (2/2)

1-629-566-11
VO-9850

SV-112 (2/2): SERVO CONTROL


A
B
C
D
E
F
G
H
J
K
L
M
N
1
2
3
4
5
6
7
SV-112
1-629-566-11
SONY
MADE IN JAPAN
CN401
CN402
CN403
CN404
CN405
CN406
CN407
CN408
CN409
CN410
CN411
CN412
CN413
CN414
CN415
CN417
DIP
LOT NO.

SV-112

—COMPONENT SIDE—
1-629-566-11
VO-9850

SV-112 (1-629-566-11) C

CN401	A-1	D906	M-2	Q203
CN402	B-1	D907	M-4	Q204
CN403	C-1	D910	L-2	Q206
CN404	C-1	D911	M-2	Q301
CN405	E-1	D912	D-2	Q302
CN406	D-1	D913	B-4	Q303
CN407	H-1	D914	K-1	Q304
CN408	J-1	D915	K-2	Q305
CN409	G-1	D916	G-1	Q401
CN410	L-1	D917	L-7	Q403
CN411	L-1	D918	H-2	Q404
CN412	M-1	D919	M-2	Q408
CN413	M-1	D920	D-2	Q410
CN414	N-2	D921	C-2	Q411
CN415	A-1			Q412
CN417	G-1	IC1	D-7	Q850
		IC2	N-2	Q851
D1	C-7	IC3	M-4	Q852
D2	E-7	IC4	M-5	Q854
D3	D-7	IC5	E-7	Q855
D5	E-7	IC8	F-5	Q856
D7	A-4	IC9	H-4	Q857
D101	H-5	IC10	J-4	Q900
D103	H-5	IC12	F-5	Q901
D104	H-3	IC13	G-4	Q902
D105	H-3	IC15	G-6	Q903
D106	E-5	IC16	L-4	Q905
D107	E-5	IC17	K-7	Q906
D108	D-6	IC18	C-4	Q907
D109	E-5	IC19	F-4	Q908
D112	G-5	IC20	G-6	Q909
D113	G-4	IC21	H-7	Q911
D202	B-4	IC22	D-4	Q912
D204	F-4	IC850	M-1	Q913
D205	F-5	IC851	F-2	Q914
D206	G-3	IC852	G-2	Q915
D207	G-3	IC853	M-2	
D208	K-3	IC854	B-3	RV1
D210	L-5	IC902	D-1	RV2
D211	K-4	IC903	M-6	RV100
D301	L-4	IC906	H-2	RV101
D302	M-5	IC907	E-2	RV102
D303	N-4	IC908	E-4	RV106
D402	L-6			RV107
D403	L-6	Q1	C-7	RV201
D404	L-6	Q2	A-6	RV402
D406	L-7	Q3	A-6	RV404
D407	L-6	Q4	A-6	RV405
D408	L-7	Q5	A-6	RV406
D409	J-7	Q101	G-3	RV850
D410	J-7	Q102	H-6	RV851
D411	L-7	Q103	H-5	RV853
D501	H-7	Q104	H-5	RV854
D600	G-5	Q106	J-5	RV900
D850	J-2	Q107	H-3	
D851	J-2	Q108	G-4	X1
D852	J-2	Q109	K-4	X2
D853	J-2	Q110	D-5	X3
D866	M-2	Q111	B-6	
D870	E-2	Q112	A-5	
D902	L-2	Q113	A-5	
D903	L-6	Q114	C-4	
D904	G-2	Q201	B-5	
D905	M-2	Q202	D-4	

9-566-11) C

D906	M-2
D907	M-4
D910	L-2
D911	M-2
D912	D-2
D913	B-4
D914	K-1
D915	K-2
D916	G-1
D917	L-7
D918	H-2
D919	M-2
D920	D-2
D921	C-2
IC1	D-7
IC2	N-2
IC3	M-4
IC4	M-5
IC5	E-7
IC8	F-5
IC9	H-4
IC10	J-4
IC12	F-5
IC13	G-4
IC15	G-6
IC16	L-4
IC17	K-7
IC18	C-4
IC19	F-4
IC20	G-6
IC21	H-7
IC22	D-4
IC850	M-1
IC851	F-2
IC852	G-2
IC853	M-2
IC854	B-3
IC902	D-1
IC903	M-6
IC906	H-2
IC907	E-2
IC908	E-4
Q1	C-7
Q2	A-6
Q3	A-6
Q4	A-6
Q5	A-6
Q101	G-3
Q102	H-6
Q103	H-5
Q104	H-5
Q106	J-5
Q107	H-3
Q108	G-4
Q109	K-4
Q110	D-5
Q111	B-6
Q112	A-5
Q113	A-5
Q114	C-4
Q201	B-5
Q202	D-4

Q203	D-4
Q204	D-5
Q206	F-3
Q301	L-4
Q302	L-4
Q303	L-4
Q304	L-5
Q305	L-4
Q401	L-7
Q403	F-7
Q404	F-4
Q408	M-7
Q410	L-5
Q411	L-6
Q412	J-6
Q850	J-2
Q851	J-1
Q852	M-7
Q854	M-1
Q855	M-2
Q856	K-2
Q857	K-2
Q900	B-3
Q901	M-2
Q902	L-3
Q903	M-3
Q905	H-2
Q906	H-1
Q907	C-2
Q908	D-7
Q909	H-3
Q911	E-4
Q912	D-1
Q913	H-2
Q914	H-2
Q915	H-2
RV1	F-7
RV2	G-7
RV100	F-6
RV101	G-4
RV102	H-7
RV106	J-4
RV107	H-5
RV201	J-5
RV402	N-7
RV404	M-6
RV405	J-7
RV406	G-7
RV850	B-2
RV851	C-2
RV853	F-2
RV854	F-2
RV900	N-6
X1	N-7
X2	C-5
X3	E-2

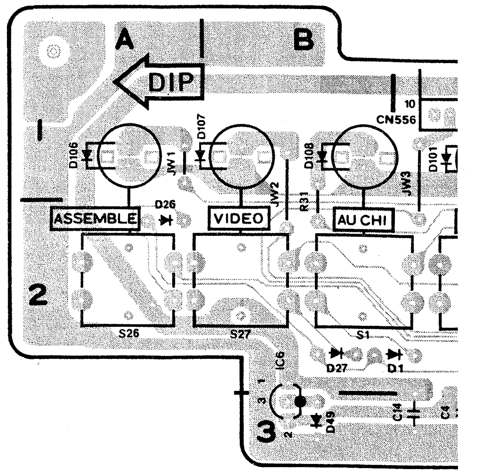
SV-112 (1-629-566-11) S

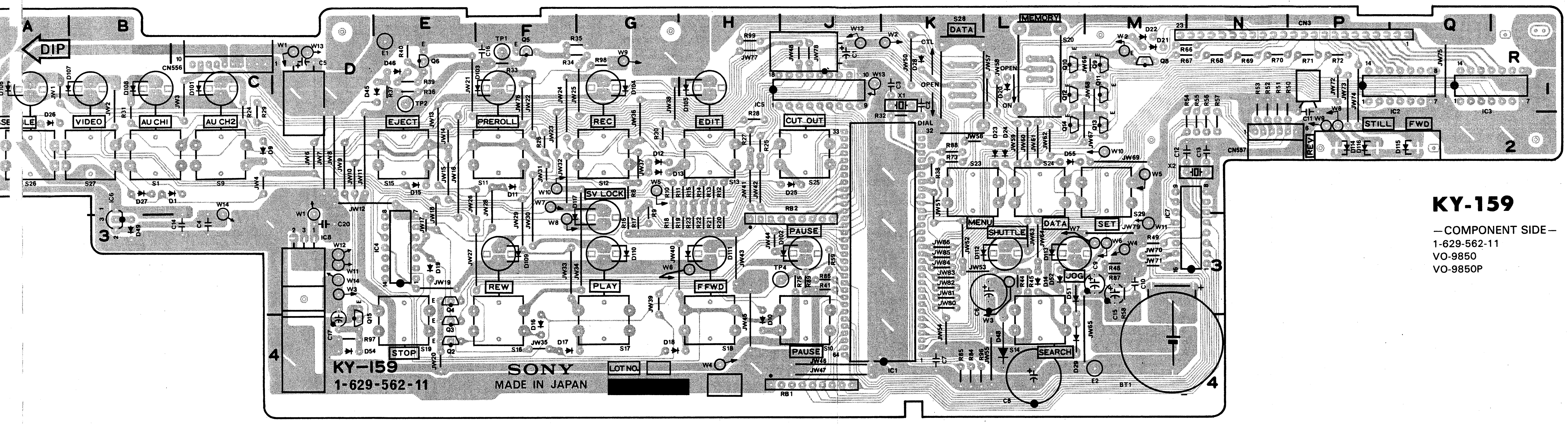
E1	A-7
E2	A-2
E3	N-7

KY-159: FUNCTION KEY BOARD
DP-62: DISPLAY

KY-159 (1-629-562-11) C

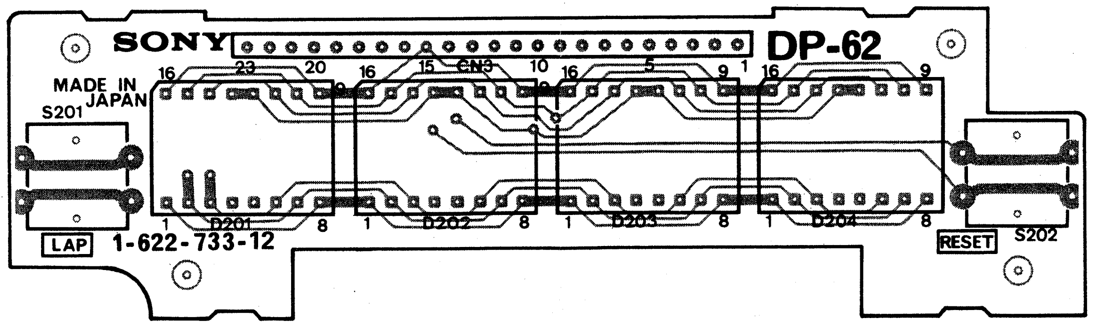
CN3	P-1	IC6	B-3
CN556	C-1	IC7	M-3
CN557	N-2	IC8	D-3
D1	B-1	Q2	E-4
D9	C-2	Q3	E-4
D10	H-4	Q4	E-3
D11	F-2	Q5	F-1
D12	G-2	Q6	E-1
D13	G-2	Q8	M-1
D14	L-3	Q9	M-1
D15	E-2	Q10	L-1
D16	F-4	Q11	M-1
D17	F-4	Q12	L-1
D18	G-4	Q13	M-2
D19	E-3	Q14	L-2
D20	L-1	Q15	D-4
D21	M-1		
D22	M-1	RB1	J-4
D23	L-2	RB2	J-2
D24	L-2		
D25	J-2	S1	B-2
D26	A-2	S9	C-2
D27	B-2	S10	J-4
D28	K-1	S11	F-2
D29	L-4	S12	G-2
D45	E-1	S13	H-2
D46	E-1	S14	L-4
D48	L-4	S15	E-2
D49	B-3	S16	F-4
D51	L-3	S17	G-4
D52	L-3	S18	H-4
D54	D-4	S19	E-4
D55	L-2	S20	L-1
D101	C-1	S23	K-2
D102	J-3	S24	L-2
D103	F-1	S25	J-2
D104	G-1	S26	A-2
D105	H-1	S27	B-2
D106	A-1	S28	K-1
D107	B-1	S29	M-2
D108	B-1	S201	S-1
D109	F-3	S202	T-1
D110	G-3		
D111	H-3	TP1	F-1
D112	L-3	TP2	E-1
D113	L-3	TP4	H-3
D114	P-2		
D115	Q-2	X1	K-1
D116	P-2	X2	M-2
D117	G-3		
D201	S-1		
D202	S-1		
D203	T-1		
D204	T-1		
E1	E-1		
E2	M-4		
IC1	K-4		
IC2	Q-1		
IC3	Q-1		
IC4	E-3		
IC5	H-1		


A
B
DIP
10
CN556
1
D106
D107
D108
D101
JW1
JW2
JW3
R31
D26
ASSEMBLE
VIDEO
AU CHI
2
S26
S27
S1
D27
D1
IC6
D49
C14
3


DIP
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
VIDEO
AU CH1
AU CH2
EJECT
PREROLL
REC
EDIT
CUT OUT
DATA
MEMORY
STILL
FWD
REV
SV LOCK
MENU
SHUTTLE
DATA
SET
JOG
PAUSE
REW
PLAY
FFWD
STOP
PAUSE
SEARCH
CN556
CN557
CN3
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
BT1
RB1
RB2
TP1
TP2
TP4
X1
X2
KY-159
1-629-562-11
SONY
MADE IN JAPAN
LOT NO.
1
2
3
4

KY-159

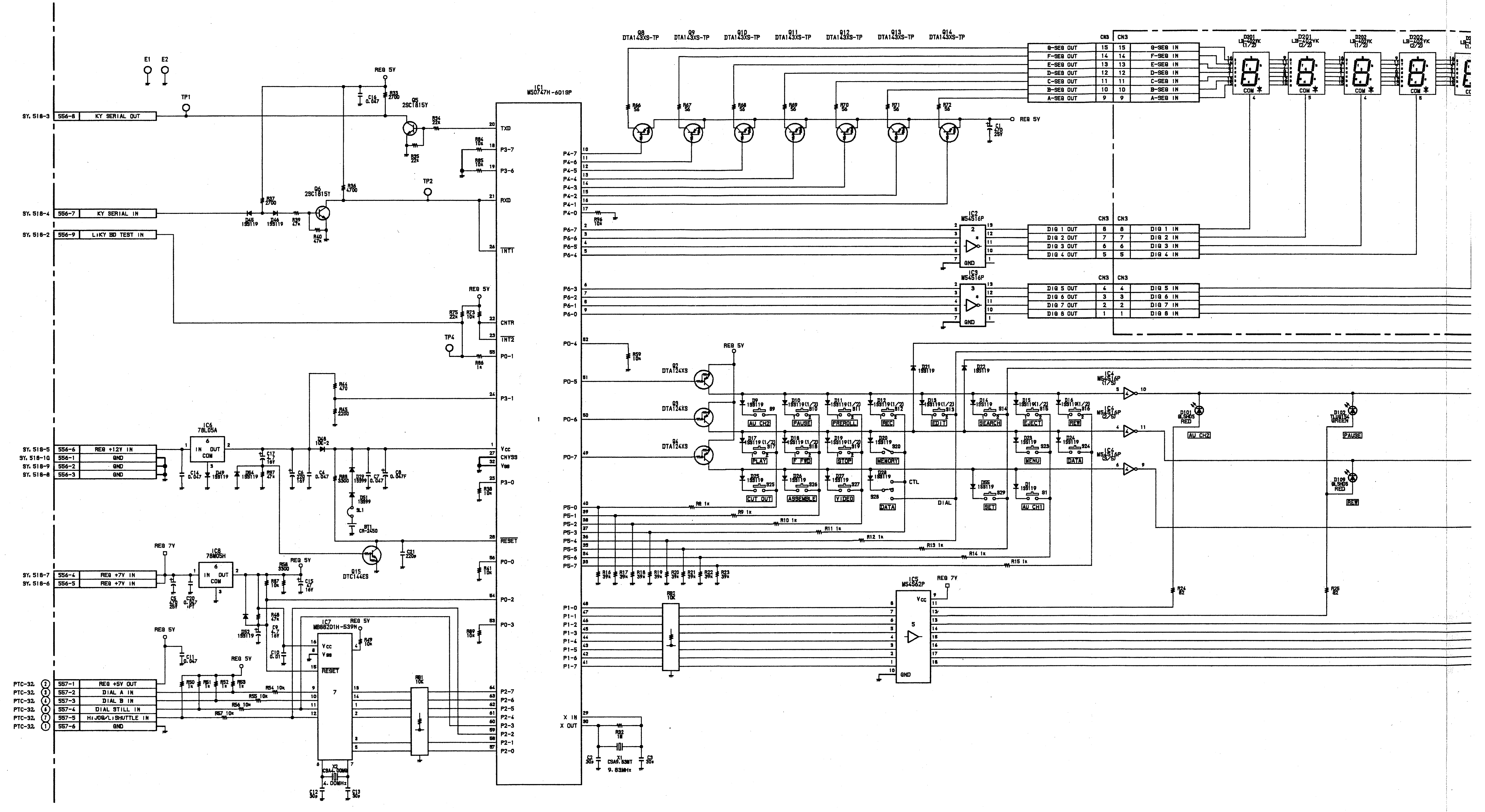
—COMPONENT SIDE—
1-629-562-11
VO-9850
VO-9850P

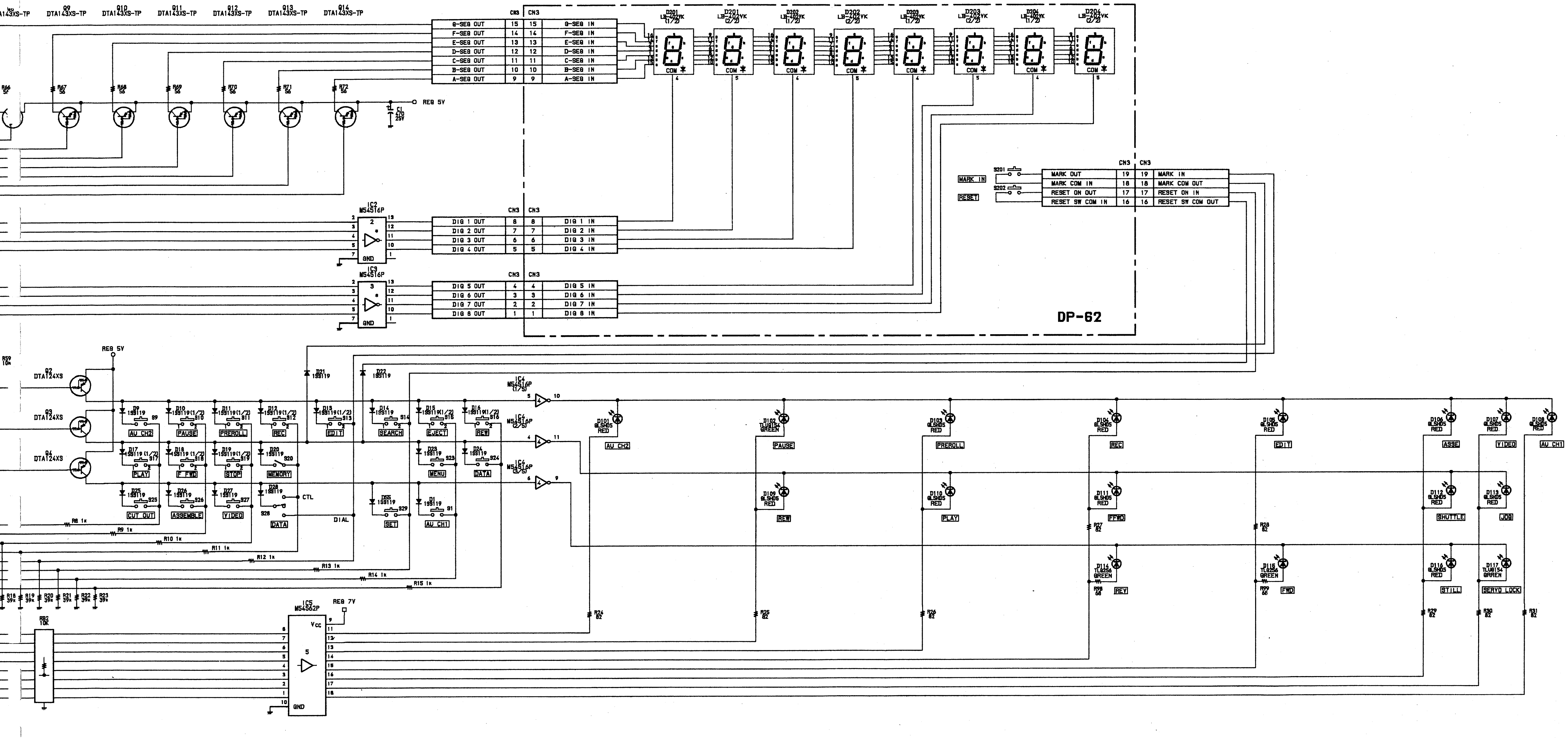

SONY
DP-62
MADE IN JAPAN
S201
S202
CN3
D201
D202
D203
D204
LAP
RESET
1-622-733-12

DP-62

—COMPONENT SIDE—
1-622-733-11
VO-9850
VO-9850P
VO-9800
VO-9800P

KY-159: FUNCTION KEY BOARD


E1
E2
TP1
TP2
TP4
REG 5V
REG 7V
SY. 518-3
SY. 518-4
SY. 518-2
SY. 518-5
SY. 518-10
SY. 518-9
SY. 518-8
SY. 518-7
SY. 518-6
556-8 KY SERIAL OUT
556-7 KY SERIAL IN
556-9 L:KY BD TEST IN
556-6 REG +12V IN
556-1 GND
556-2 GND
556-3 GND
556-4 REG +7V IN
556-5 REG +7V IN
PTC-32 ② 557-1 REG +5V OUT
PTC-32 ③ 557-2 DIAL A IN
PTC-32 ④ 557-3 DIAL B IN
PTC-32 ⑥ 557-4 DIAL STILL IN
PTC-32 ⑦ 557-5 H:JOG/L:SHUTTLE IN
PTC-32 ① 557-6 GND
IC1 M50747H-601SP
IC2 M54516P
IC3 M54516P
IC4 M54516P
IC5 M54562P
IC6 78L05A
IC7 MB88201H-539N
IC8 78M05H
Q5 2SC1815Y
Q6 2SC1815Y
Q15 DTC144ES
Q2 DTA124XS
Q3 DTA124XS
Q4 DTA124XS
Q8 DTA143XS-TP
Q9 DTA143XS-TP
Q10 DTA143XS-TP
Q11 DTA143XS-TP
Q12 DTA143XS-TP
Q13 DTA143XS-TP
Q14 DTA143XS-TP
TXD
RXD
INT1
CNTR
INT2
Vcc
CNVSS
Vss
RESET
X IN
X OUT
X1 CSA9.83MT 9.83MHz
X2 CSA4.00MG 4.00MHz
BT1 CR-2450
SL1
CN3
G-SEG OUT
F-SEG OUT
E-SEG OUT
D-SEG OUT
C-SEG OUT
B-SEG OUT
A-SEG OUT
G-SEG IN
F-SEG IN
E-SEG IN
D-SEG IN
C-SEG IN
B-SEG IN
A-SEG IN
DIG 1 OUT
DIG 2 OUT
DIG 3 OUT
DIG 4 OUT
DIG 5 OUT
DIG 6 OUT
DIG 7 OUT
DIG 8 OUT
DIG 1 IN
DIG 2 IN
DIG 3 IN
DIG 4 IN
DIG 5 IN
DIG 6 IN
DIG 7 IN
DIG 8 IN
D201 LB-202VK
D202 LB-202VK
COM
AU CH2
PAUSE
PREROLL
REC
EDIT
SEARCH
EJECT
REW
PLAY
F FWD
STOP
MEMORY
MENU
DATA
CUT OUT
ASSEMBLE
VIDEO
CTL
DIAL
SET
AU CH1
D101 SLSHDS RED
D102 TLUG154 GREEN
D103 SLSHDS RED
1SS119


DTA143XS-TP
Q9 DTA143XS-TP
Q10 DTA143XS-TP
Q11 DTA143XS-TP
Q12 DTA143XS-TP
Q13 DTA143XS-TP
Q14 DTA143XS-TP
R66 56
R67 56
R68 56
R69 56
R70 56
R71 56
R72 56
C1 470 25V
REG 5V
CN3
CN3
G-SEG OUT 15 15 G-SEG IN
F-SEG OUT 14 14 F-SEG IN
E-SEG OUT 13 13 E-SEG IN
D-SEG OUT 12 12 D-SEG IN
C-SEG OUT 11 11 C-SEG IN
B-SEG OUT 10 10 B-SEG IN
A-SEG OUT 9 9 A-SEG IN
D201 LB-402VK (1/2)
D201 LB-402VK (2/2)
D202 LB-402VK (1/2)
D202 LB-402VK (2/2)
D203 LB-402VK (1/2)
D203 LB-402VK (2/2)
D204 LB-402VK (1/2)
D204 LB-402VK (2/2)
COM
IC2 M54516P
IC3 M54516P
GND
DIG 1 OUT 8 8 DIG 1 IN
DIG 2 OUT 7 7 DIG 2 IN
DIG 3 OUT 6 6 DIG 3 IN
DIG 4 OUT 5 5 DIG 4 IN
DIG 5 OUT 4 4 DIG 5 IN
DIG 6 OUT 3 3 DIG 6 IN
DIG 7 OUT 2 2 DIG 7 IN
DIG 8 OUT 1 1 DIG 8 IN
S201
S202
MARK IN
RESET
MARK OUT 19 19 MARK IN
MARK COM IN 18 18 MARK COM OUT
RESET ON OUT 17 17 RESET ON IN
RESET SW COM IN 16 16 RESET SW COM OUT
DP-62
R59 10k
REG 5V
Q2 DTA124XS
Q3 DTA124XS
Q4 DTA124XS
D9 1SS119 S9 AU CH2
D10 1SS119(1/2) S10 PAUSE
D11 1SS119(1/2) S11 PREROLL
D12 1SS119(1/2) S12 REC
D13 1SS119(1/2) S13 EDIT
D14 1SS119 S14 SEARCH
D15 1SS119(1/2) S15 EJECT
D16 1SS119(1/2) S16 REW
D17 1SS119 (1/2) S17 PLAY
D18 1SS119 (1/2) S18 F FWD
D19 1SS119(1/2) S19 STOP
D20 1SS119 S20 MEMORY
D23 1SS119 S23 MENU
D24 1SS119 S24 DATA
D25 1SS119 S25 CUT OUT
D26 1SS119 S26 ASSEMBLE
D27 1SS119 S27 VIDEO
D28 1SS119 S28 DATA
CTL
DIAL
D55 1SS119 S29 SET
D1 1SS119 S1 AU CH1
D21 1SS119
D22 1SS119
IC4 M54516P (1/5)
IC4 M54516P (2/5)
IC4 M54516P (3/5)
R8 1k
R9 1k
R10 1k
R11 1k
R12 1k
R13 1k
R14 1k
R15 1k
R18 39k
R19 39k
R20 39k
R21 39k
R22 39k
R23 39k
RB2 10K
IC5 M54562P
REG 7V
Vcc
GND
D101 GL5HD5 RED AU CH2
D102 TLUG154 GREEN PAUSE
D103 GL5HD5 RED PREROLL
D104 GL5HD5 RED REC
D105 GL5HD5 RED EDIT
D106 GL5HD5 RED ASSE
D107 GL5HD5 RED VIDEO
D108 GL5HD5 RED AU CH1
D109 GL5HD5 RED REW
D110 GL5HD5 RED PLAY
D111 GL5HD5 RED FFWD
D112 GL5HD5 RED SHUTTLE
D113 GL5HD5 RED JOG
D114 TLG256 GREEN REV
D115 TLG256 GREEN FWD
D116 GL5HD5 RED STILL
D117 TLUG154 GRREN SERVO LOCK
R24 82
R25 82
R26 82
R27 82
R28 82
R29 82
R30 82
R31 82
R98 68
R99 68

KY-159

1-629-562-11
VO-9850
VO-9850P

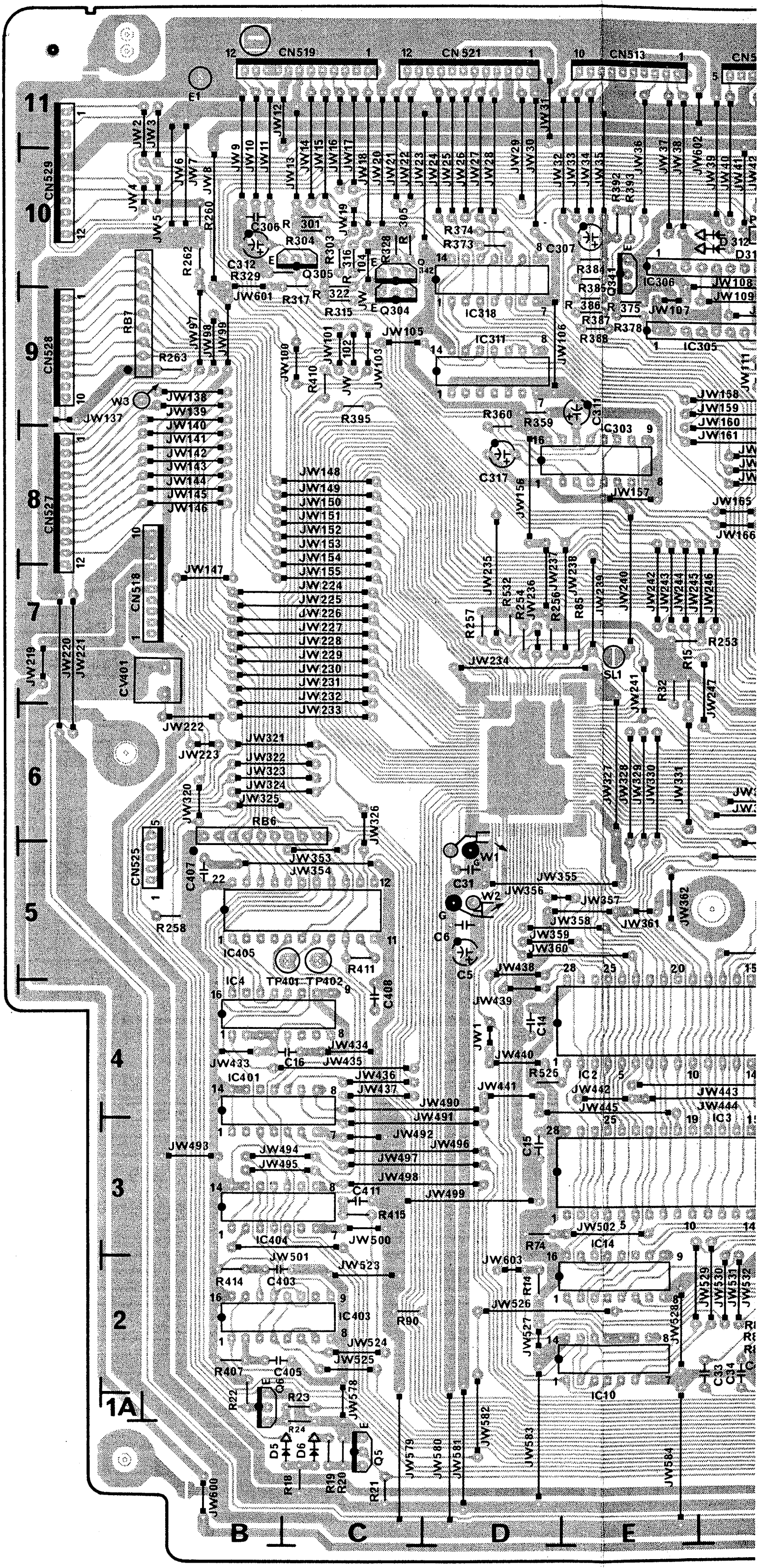
SY-141 (1/2): SYSTEM CONTROL

SY-141 (1-629-560-11) C

CNI2	E-4
CN501	P-9
CN502	P-10
CN503	P-11
CN504	M-11
CN505	P-4
CN506	N-11
CN507	L-11
CN508	J-11
CN509	H-11
CN510	P-4
CN511	J-11
CN512	H-11
CN513	E-11
CN514	F-11
CN515	G-11
CN516	G-11
CN517	M-11
CN518	A-7
CN519	C-11
CN520	P-8
CN521	D-11
CN522	F-11
CN523	P-7
CN524	P-8
CN525	A-5
CN526	G-8
CN527	A-8
CN528	A-9
CN529	A-10
CV401	A-7
D2	L-4
D3	K-3
D4	J-3
D5	B-1
D6	C-1
D10	L-4
D11	M-7
D12	H-9
D301	N-5
D302	M-5
D303	P-7
D304	P-7
D305	P-7
D306	P-7
D307	M-9
D308	M-9
D309	M-8
D310	M-9
D311	P-7
D312	F-10
D313	G-10
D314	F-10
D315	G-10
D316	J-7
D317	J-9
D320	G-8
D321	H-8
D501	P-10
D502	P-10
D503	M-1
D510	H-3
E1	B-11
E2	P-1
F600	N-6
IC3	F-3
IC4	B-4
IC5	G-5
IC8	K-4
IC9	M-2
IC10	E-2
IC11	M-2
IC12	N-2
IC13	G-2
IC14	E-3
IC17	G-3
IC18	G-6
IC101	N-10
IC102	L-9
IC103	H-10
IC104	H-3
IC105	M-8
IC301	P-2
IC302	H-2
IC303	E-8
IC304	P-5
IC305	E-9
IC306	E-10
IC311	D-9
IC315	M-8
IC316	L-3
IC318	D-9
IC401	B-4
IC403	C-2
IC404	B-3
IC405	B-5
Q2	K-3
Q3	K-3
Q4	N-3
Q5	C-1
Q6	B-1
Q301	N-5
Q302	L-9
Q303	N-5
Q304	C-9
Q305	C-10
Q306	P-5
Q307	N-5
Q308	M-3
Q309	P-6
Q310	P-4
Q311	M-5
Q312	P-4
Q313	M-5
Q314	P-6
Q315	N-6
Q316	N-6
Q317	P-7
Q318	P-7
Q319	P-7
Q336	P-3
Q337	N-11
Q341	E-10
Q342	C-10
Q401	N-11
Q501	N-1
RB3	K-4
RB6	B-6
RB7	A-9
RB10	K-4
RB11	K-8
RV1	J-1
RV2	J-1
RV3	K-1
RV4	K-1
X1	H-3
X302	J-7

SY-141 (1-629-560-11) S

IC1	D-6
IC6	K-6
IC307	H-7


11
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1A
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C
D
E
CN519
CN521
CN513
CN529
CN528
CN527
CN518
CN525
CV401
RB1
RB6
IC318
IC311
IC306
IC305
IC303
IC405
IC4
IC401
IC404
IC403
IC2
IC3
IC14
IC10
Q304
Q305
TP401
TP402
W1
W2
W3

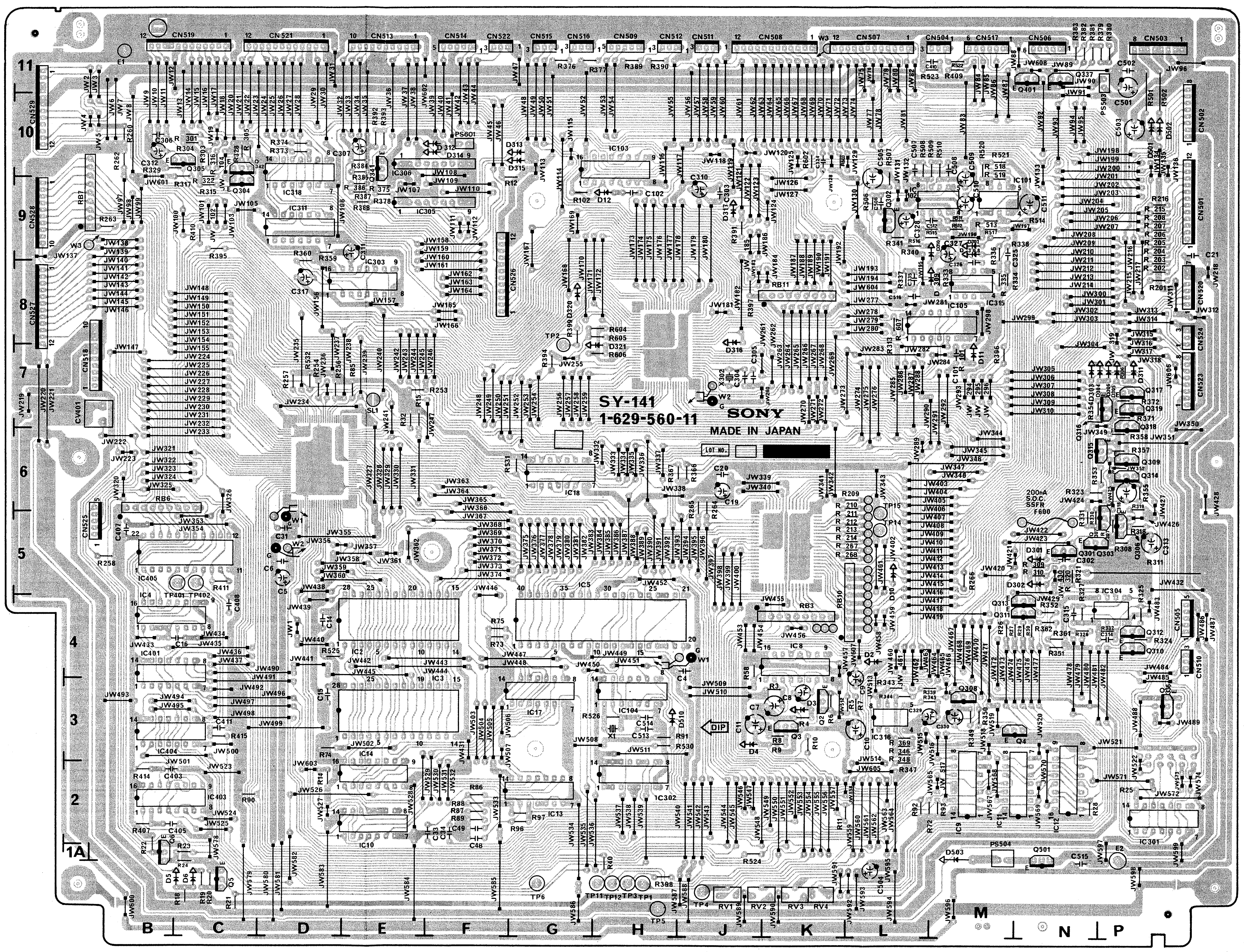
SY-141 (1/2): SYSTEM CONTROL

SY-141 (1-629-560-11) C

CNI2	E-4	D510	H-3	Q337	N-11
				Q341	E-10
CN501	P-9	E1	B-11	Q342	C-10
CN502	P-10	E2	P-1	Q401	N-11
CN503	P-11			Q501	N-1
CN504	M-11	F600	N-6		
CN505	P-4			RB3	K-4
CN506	N-11	IC3	F-3	RB6	B-6
CN507	L-11	IC4	B-4	RB7	A-9
CN508	J-11	IC5	G-5	RB10	K-4
CN509	H-11	IC8	K-4	RB11	K-8
CN510	P-4	IC9	M-2		
CN511	J-11	IC10	E-2	RV1	J-1
CN512	H-11	IC11	M-2	RV2	J-1
CN513	E-11	IC12	N-2	RV3	K-1
CN514	F-11	IC13	G-2	RV4	K-1
CN515	G-11	IC14	E-3		
CN516	G-11	IC17	G-3	X1	H-3
CN517	M-11	IC18	G-6	X302	J-7
CN518	A-7	IC101	N-10		
CN519	C-11	IC102	L-9		
CN520	P-8	IC103	H-10		
CN521	D-11	IC104	H-3		
CN522	F-11	IC105	M-8		
CN523	P-7	IC301	P-2		
CN524	P-8	IC302	H-2		
CN525	A-5	IC303	E-8		
CN526	G-8	IC304	P-5		
CN527	A-8	IC305	E-9		
CN528	A-9	IC306	E-10		
CN529	A-10	IC311	D-9		
		IC315	M-8		
CV401	A-7	IC316	L-3		
		IC318	D-9		
D2	L-4	IC401	B-4		
D3	K-3	IC403	C-2		
D4	J-3	IC404	B-3		
D5	B-1	IC405	B-5		
D6	C-1				
D10	L-4	Q2	K-3		
D11	M-7	Q3	K-3		
D12	H-9	Q4	N-3		
D301	N-5	Q5	C-1		
D302	M-5	Q6	B-1		
D303	P-7	Q301	N-5		
D304	P-7	Q302	L-9		
D305	P-7	Q303	N-5		
D306	P-7	Q304	C-9		
D307	M-9	Q305	C-10		
D308	M-9	Q306	P-5		
D309	M-8	Q307	N-5		
D310	M-9	Q308	M-3		
D311	P-7	Q309	P-6		
D312	F-10	Q310	P-4		
D313	G-10	Q311	M-5		
D314	F-10	Q312	P-4		
D315	G-10	Q313	M-5		
D316	J-7	Q314	P-6		
D317	J-9	Q315	N-6		
D320	G-8	Q316	N-6		
D321	H-8	Q317	P-7		
D501	P-10	Q318	P-7		
D502	P-10	Q319	P-7		
D503	M-1	Q336	P-3		

SY-141 (1-629-560-11) S

IC1	D-6
IC6	K-6
IC307	H-7


CN519
CN521
CN513
CN514
CN522
CN515
CN516
CN509
CN512
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CN504
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CN503
CN502
CN501
CN529
CN528
CN527
CN518
CN525
CN526
CN520
CN524
CN523
CN505
CN510
IC1
IC2
IC3
IC4
IC5
IC8
IC10
IC13
IC14
IC17
IC18
IC101
IC102
IC103
IC104
IC105
IC301
IC303
IC304
IC305
IC306
IC311
IC315
IC316
IC318
IC401
IC403
IC404
IC405
SY-141
1-629-560-11
SONY
MADE IN JAPAN
LOT NO.
200mA
S.O.C.
SSFR
F600
DIP
RV1
RV2
RV3
RV4
TP1
TP2
TP3
TP4
TP5
TP6
TP11
TP12
TP14
TP15
11
10
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G
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J
K
L
M
N
P

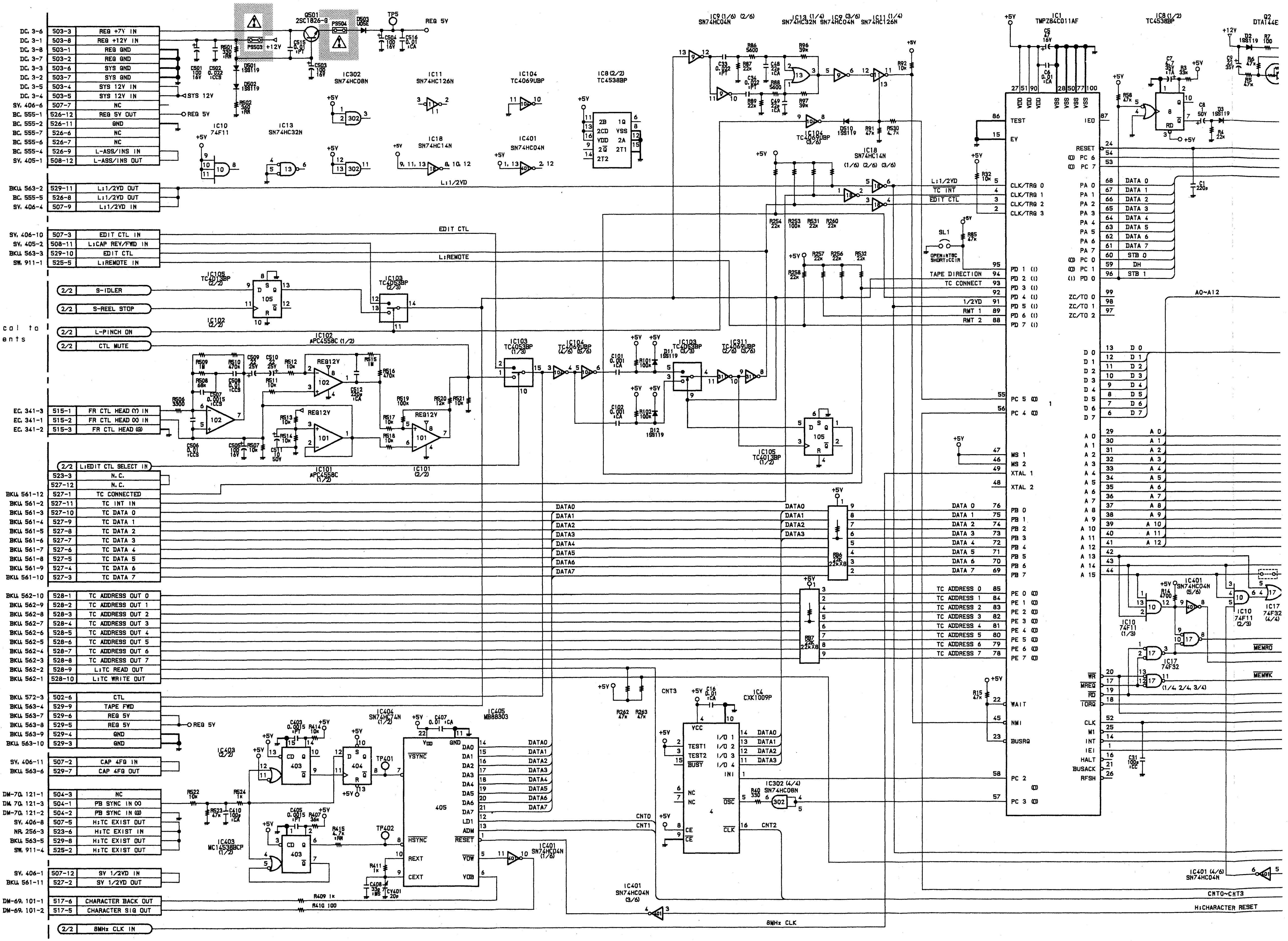
SY-141

—COMPONENT SIDE—
1-629-560-11
VO-9850

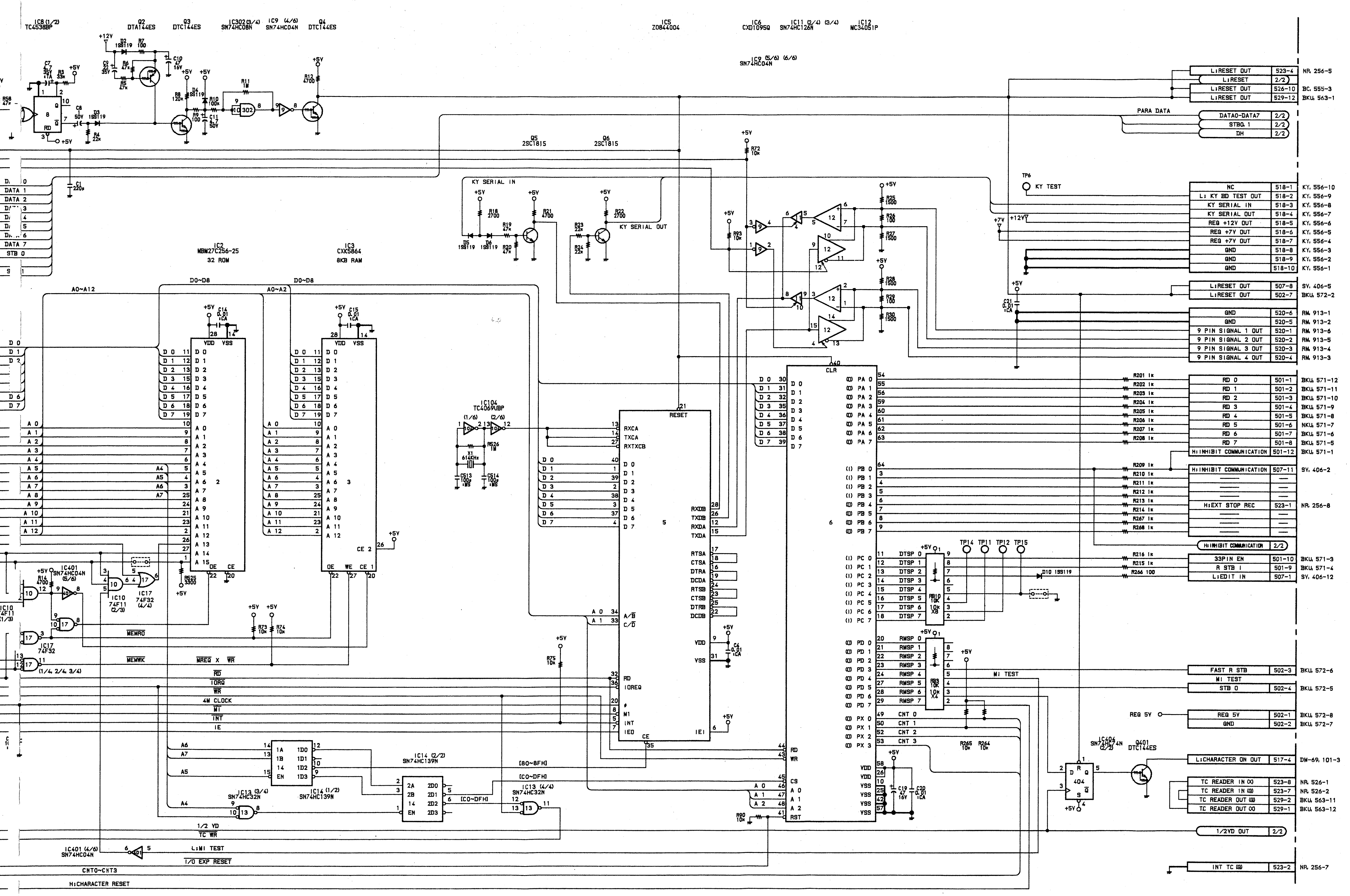
SY-141 (1/2): SYSTEM CONTROL

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.



REG +7V IN
REG +12V IN
REG GND
SYS GND
SYS 12V IN
REG 5V OUT
L-ASS/INS IN
L-ASS/INS OUT
L:1/2VD OUT
L:1/2VD IN
EDIT CTL IN
L:CAP REV/FWD IN
EDIT CTL
L:REMOTE IN
S-IDLER
S-REEL STOP
L-PINCH ON
CTL MUTE
FR CTL HEAD (Y) IN
FR CTL HEAD (X) IN
FR CTL HEAD (G)
L:EDIT CTL SELECT IN
TC CONNECTED
TC INT IN
TC DATA 0
TC DATA 1
TC DATA 2
TC DATA 3
TC DATA 4
TC DATA 5
TC DATA 6
TC DATA 7
TC ADDRESS OUT 0
TC ADDRESS OUT 1
TC ADDRESS OUT 2
TC ADDRESS OUT 3
TC ADDRESS OUT 4
TC ADDRESS OUT 5
TC ADDRESS OUT 6
TC ADDRESS OUT 7
L:TC READ OUT
L:TC WRITE OUT
CTL
TAPE FWD
REG 5V
GND
CAP 4FG IN
CAP 4FG OUT
NC
PB SYNC IN (X)
PB SYNC IN (G)
H:TC EXIST OUT
H:TC EXIST IN
SV 1/2VD IN
SY 1/2VD OUT
CHARACTER BACK OUT
CHARACTER SIG OUT
8MHz CLK IN
Q501 2SC1826-Q
PS503
PS504
TP5
IC1 TMPZ84C011AF
IC4 CXK1009P
IC405 MB88303
IC404 SN74HC74N
IC403 MC14538BCP
IC101 µPC4558C
IC102 µPC4558C
IC103 TC4053BP
IC104 TC4069UBP
IC105 TC4013BP
IC8 TC4538BP
IC9 SN74HC04N
IC10 74F11
IC11 SN74HC126N
IC13 SN74HC32N
IC17 74F32
IC18 SN74HC14N
IC302 SN74HC08N
IC311 TC4069UBP
IC401 SN74HC04N
SL1 OPEN:NTSC SHORT:CCIR
TEST
EV
RESET
CLK/TRG 0
CLK/TRG 1
CLK/TRG 2
CLK/TRG 3
TAPE DIRECTION
TC CONNECT
1/2YD
RMT 1
RMT 2
MS 1
MS 2
XTAL 1
XTAL 2
WAIT
NMI
BUSRQ
DATA 0
DATA 1
DATA 2
DATA 3
DATA 4
DATA 5
DATA 6
DATA 7
STB 0
DH
STB 1
A0~A12
MEMRD
MEMWR
CNT0~CNT3
H:CHARACTER RESET
8MHz CLK


IC8 (1/2) TC4538BP
Q2 DTA144ES
Q3 DTC144ES
IC302 (3/4) SN74HC08N
IC9 (4/6) SN74HC04N
Q4 DTC144ES
IC5 Z0844004
IC6 CXD1095Q
IC11 (2/4) (3/4) SN74HC126N
IC12 MC34051P
IC9 (5/6) (6/6) SN74HC04N
Q5 2SC1815
Q6 2SC1815
IC2 MBM27C256-25 32 ROM
IC3 CXK5864 8KB RAM
IC104 TC4069UBP
X1 614KHz
KY SERIAL IN
KY SERIAL OUT
PARA DATA
KY TEST
L:RESET OUT 523-4 NR. 256-5
L:RESET 2/2
L:RESET OUT 526-10 BC. 555-3
L:RESET OUT 529-12 BKU. 563-1
DATA0-DATA7 2/2
STB0. 1 2/2
DH 2/2
NC 518-1 KY. 556-10
L: KY BD TEST OUT 518-2 KY. 556-9
KY SERIAL IN 518-3 KY. 556-8
KY SERIAL OUT 518-4 KY. 556-7
REG +12V OUT 518-5 KY. 556-6
REG +7V OUT 518-6 KY. 556-5
REG +7V OUT 518-7 KY. 556-4
GND 518-8 KY. 556-3
GND 518-9 KY. 556-2
GND 518-10 KY. 556-1
L:RESET OUT 507-8 SY. 406-5
L:RESET OUT 502-7 BKU. 572-2
GND 520-6 RM. 913-1
GND 520-5 RM. 913-2
9 PIN SIGNAL 1 OUT 520-1 RM. 913-6
9 PIN SIGNAL 2 OUT 520-2 RM. 913-5
9 PIN SIGNAL 3 OUT 520-3 RM. 913-4
9 PIN SIGNAL 4 OUT 520-4 RM. 913-3
RD 0 501-1 BKU. 571-12
RD 1 501-2 BKU. 571-11
RD 2 501-3 BKU. 571-10
RD 3 501-4 BKU. 571-9
RD 4 501-5 BKU. 571-8
RD 5 501-6 NKU. 571-7
RD 6 501-7 BKU. 571-6
RD 7 501-8 BKU. 571-5
H:INHIBIT COMMUNICATION 501-12 BKU. 571-1
H:INHIBIT COMMUNICATION 507-11 SY. 406-2
H:EXT STOP REC 523-1 NR. 256-8
H:INHIBIT COMMUNICATION 2/2
33PIN EN 501-10 BKU. 571-3
R STB I 501-9 BKU. 571-4
L:EDIT IN 507-1 SY. 406-12
FAST R STB 502-3 BKU. 572-6
MI TEST
STB 0 502-4 BKU. 572-5
REG 5V
REG 5V 502-1 BKU. 572-8
GND 502-2 BKU. 572-7
IC404 SN74HC74N (2/2)
Q401 DTC144ES
L:CHARACTER ON OUT 517-4 DM-69, 101-3
TC READER IN (+) 523-8 NR. 526-1
TC READER IN (-) 523-7 NR. 526-2
TC READER OUT (-) 529-2 BKU. 563-11
TC READER OUT (+) 529-1 BKU. 563-12
1/2YD OUT 2/2
INT TC (-) 523-2 NR. 256-7
IC401 SN74HC04N (5/6)
IC10 74F11 (2/3)
IC17 74F32 (4/4)
IC17 74F32 (1/4, 2/4, 3/4)
MEMRD
MEMWR
MREQ X WR
RD
IORQ
WR
4M CLOCK
MI
INT
IE
IC14 (2/2) SN74HC139N
IC14 (1/2) SN74HC139N
IC13 (3/4) SN74HC32N
IC13 (4/4) SN74HC32N
[80~8FH]
[C0~DFH]
[C0~DFH]
1/2 YD
TC WR
IC401 (4/6) SN74HC04N
L:MI TEST
I/O EXP RESET
CNT0~CNT3
H:CHARACTER RESET
RB10 10K X8
RB3 10K X4
TP14 TP11 TP12 TP15
D10 1SS119

SY-141 (1/2)

1-629-560-11
VO-9850

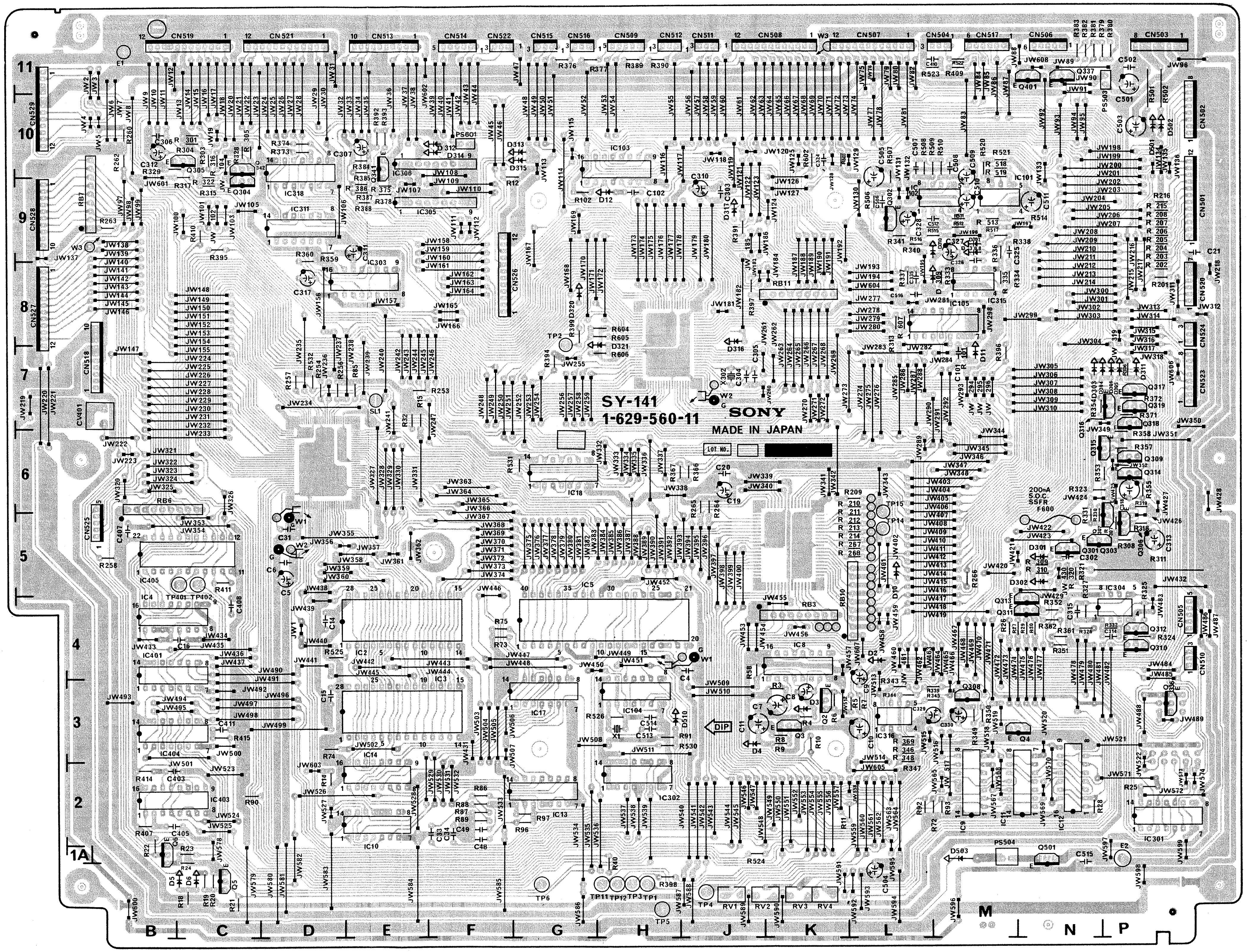
SY-141 (2/2): SYSTEM CONTROL, REEL SERVO

SY-141 (1-629-560-11) C

CNI2	E-4	D510	H-3	Q337	N-11
				Q341	E-10
CN501	P-9	E1	B-11	Q342	C-10
CN502	P-10	E2	P-1	Q401	N-11
CN503	P-11			Q501	N-1
CN504	M-11	F600	N-6		
CN505	P-4			RB3	K-4
CN506	N-11	IC3	F-3	RB6	B-6
CN507	L-11	IC4	B-4	RB7	A-9
CN508	J-11	IC5	G-5	RB10	K-4
CN509	H-11	IC8	K-4	RB11	K-8
CN510	P-4	IC9	M-2		
CN511	J-11	IC10	E-2	RV1	J-1
CN512	H-11	IC11	M-2	RV2	J-1
CN513	E-11	IC12	N-2	RV3	K-1
CN514	F-11	IC13	G-2	RV4	K-1
CN515	G-11	IC14	E-3		
CN516	G-11	IC17	G-3	X1	H-3
CN517	M-11	IC18	G-6	X302	J-7
CN518	A-7	IC101	N-10		
CN519	C-11	IC102	L-9		
CN520	P-8	IC103	H-10		
CN521	D-11	IC104	H-3		
CN522	F-11	IC105	M-8		
CN523	P-7	IC301	P-2		
CN524	P-8	IC302	H-2		
CN525	A-5	IC303	E-8		
CN526	G-8	IC304	P-5		
CN527	A-8	IC305	E-9		
CN528	A-9	IC306	E-10		
CN529	A-10	IC311	D-9		
		IC315	M-8		
CV401	A-7	IC316	L-3		
		IC318	D-9		
D2	L-4	IC401	B-4		
D3	K-3	IC403	C-2		
D4	J-3	IC404	B-3		
D5	B-1	IC405	B-5		
D6	C-1				
D10	L-4	Q2	K-3		
D11	M-7	Q3	K-3		
D12	H-9	Q4	N-3		
D301	N-5	Q5	C-1		
D302	M-5	Q6	B-1		
D303	P-7	Q301	N-5		
D304	P-7	Q302	L-9		
D305	P-7	Q303	N-5		
D306	P-7	Q304	C-9		
D307	M-9	Q305	C-10		
D308	M-9	Q306	P-5		
D309	M-8	Q307	N-5		
D310	M-9	Q308	M-3		
D311	P-7	Q309	P-6		
D312	F-10	Q310	P-4		
D313	G-10	Q311	M-5		
D314	F-10	Q312	P-4		
D315	G-10	Q313	M-5		
D316	J-7	Q314	P-6		
D317	J-9	Q315	N-6		
D320	G-8	Q316	N-6		
D321	H-8	Q317	P-7		
D501	P-10	Q318	P-7		
D502	P-10	Q319	P-7		
D503	M-1	Q336	P-3		

SY-141 (1-629-560-11) S

IC1	D-6
IC6	K-6
IC307	H-7


SY-141
1-629-560-11
SONY
MADE IN JAPAN
LOT NO.
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CN514
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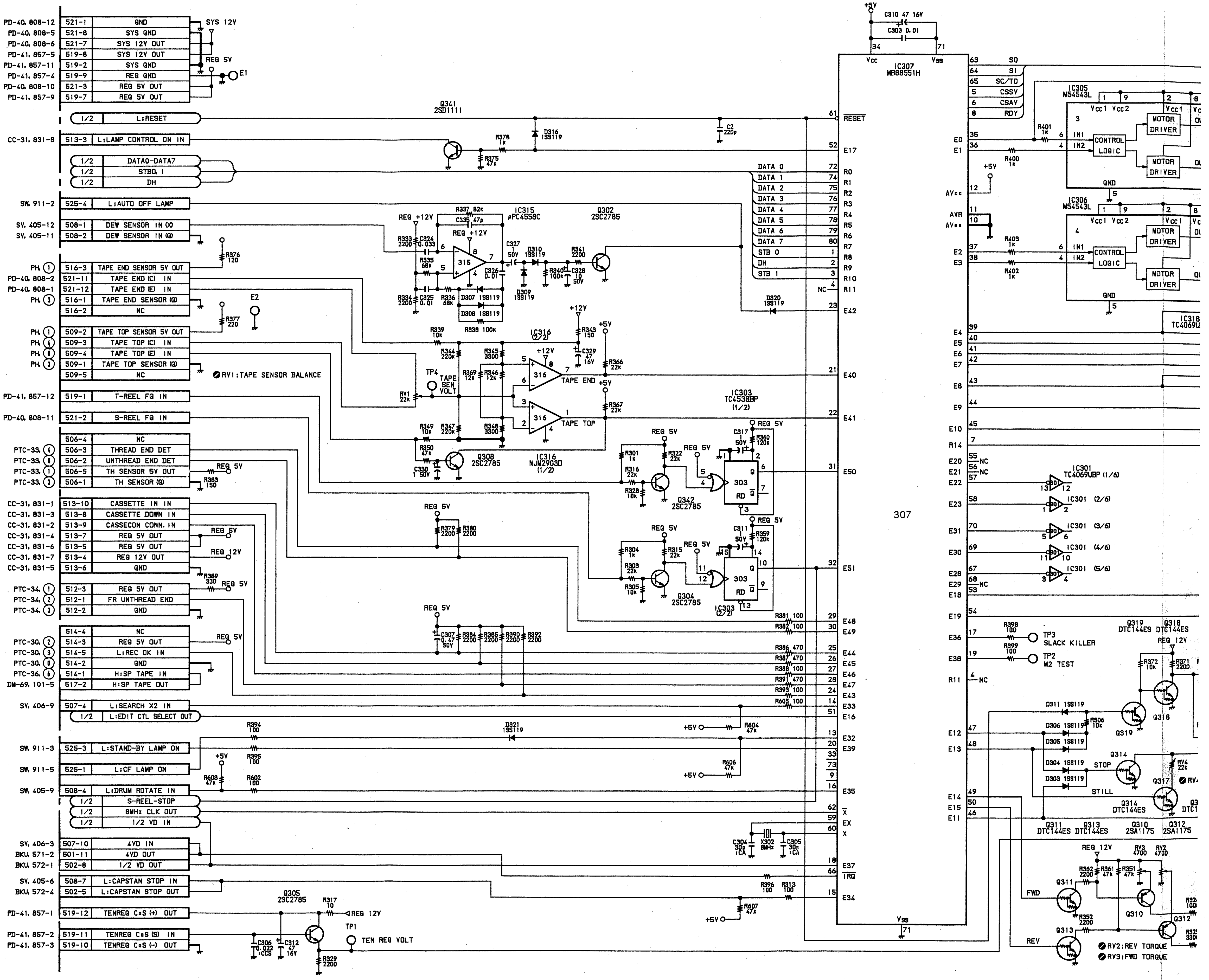
CN502
CN501
CN520
CN524
CN523
CN505
CN510
IC1
IC3
IC5
IC4
IC401
IC405
IC10
IC13
IC17
IC18
IC103
IC105
IC301
IC304
IC305
IC306
IC311
TP1
TP2
TP3
TP4
TP5
TP6
RV1
RV2
RV3
RV4
DIP
200mA S.O.C. SSFR F600

SY-141

—COMPONENT SIDE—
1-629-560-11
VO-9850

SY-141 (2/2): SYSTEM CONTROL, REEL SERVO


PD-40, 808-12 521-1 GND
PD-40, 808-5 521-8 SYS GND
PD-40, 808-6 521-7 SYS 12V OUT
PD-41, 857-5 519-8 SYS 12V OUT
PD-41, 857-11 519-2 SYS GND
PD-41, 857-4 519-9 REG GND
PD-40, 808-10 521-3 REG 5V OUT
PD-41, 857-9 519-7 REG 5V OUT
SYS 12V
REG 5V
E1
1/2 L:RESET
CC-31, 831-8 513-3 L:LAMP CONTROL ON IN
1/2 DATA0-DATA7
1/2 STBO, 1
1/2 DH
SW, 911-2 525-4 L:AUTO OFF LAMP
SV, 405-12 508-1 DEW SENSOR IN (X)
SV, 405-11 508-2 DEW SENSOR IN (G)
PH ① 516-3 TAPE END SENSOR 5V OUT
PD-40, 808-2 521-11 TAPE END (C) IN
PD-40, 808-1 521-12 TAPE END (E) IN
PH ③ 516-1 TAPE END SENSOR (G)
516-2 NC
PH ① 509-2 TAPE TOP SENSOR 5V OUT
PH ④ 509-3 TAPE TOP (C) IN
PH ⑧ 509-4 TAPE TOP (E) IN
PH ③ 509-1 TAPE TOP SENSOR (G)
509-5 NC
RV1:TAPE SENSOR BALANCE
PD-41, 857-12 519-1 T-REEL FG IN
PD-40, 808-11 521-2 S-REEL FG IN
506-4 NC
PTC-33 ④ 506-3 THREAD END DET
PTC-33 ⑧ 506-2 UNTHREAD END DET
PTC-33 ① 506-5 TH SENSOR 5V OUT
PTC-33 ③ 506-1 TH SENSOR (G)
CC-31, 831-1 513-10 CASSETTE IN IN
CC-31, 831-3 513-8 CASSETTE DOWN IN
CC-31, 831-2 513-9 CASSECON CONN. IN
CC-31, 831-4 513-7 REG 5V OUT
CC-31, 831-6 513-5 REG 5V OUT
CC-31, 831-7 513-4 REG 12V OUT
CC-31, 831-5 513-6 GND
PTC-34 ① 512-3 REG 5V OUT
PTC-34 ② 512-1 FR UNTHREAD END
PTC-34 ③ 512-2 GND
514-4 NC
PTC-30 ② 514-3 REG 5V OUT
PTC-30 ③ 514-5 L:REC OK IN
PTC-30 ⑧ 514-2 GND
PTC-36 ⑥ 514-1 H:SP TAPE IN
DM-69, 101-5 517-2 H:SP TAPE OUT
SV, 406-9 507-4 L:SEARCH X2 IN
1/2 L:EDIT CTL SELECT OUT
SW, 911-3 525-3 L:STAND-BY LAMP ON
SW, 911-5 525-1 L:CF LAMP ON
SV, 405-9 508-4 L:DRUM ROTATE IN
1/2 S-REEL-STOP
1/2 8MHz CLK OUT
1/2 1/2 VD IN
SV, 406-3 507-10 4VD IN
BKU, 571-2 501-11 4VD OUT
BKU, 572-1 502-8 1/2 VD OUT
SV, 405-6 508-7 L:CAPSTAN STOP IN
BKU, 572-4 502-5 L:CAPSTAN STOP OUT
PD-41, 857-1 519-12 TENREG CeS (+) OUT
PD-41, 857-2 519-11 TENREG CeS (S) IN
PD-41, 857-3 519-10 TENREG CeS (-) OUT
Q341 2SD1111
IC315 μPC4558C
Q302 2SC2785
IC316 (2/2)
TAPE END
TAPE TOP
TP4 TAPE SEN VOLT
E2
IC303 TC4538BP (1/2)
IC316 NJM2903D (1/2)
Q308 2SC2785
Q342 2SC2785
Q304 2SC2785
IC303 (2/2)
Q305 2SC2785
TP1 TEN REG VOLT
X302 8MHz
IC307 MB88551H
307
RESET
DATA 0
DATA 1
DATA 2
DATA 3
DATA 4
DATA 5
DATA 6
DATA 7
STB 0
DH
STB 1
IC305 M54543L
IC306 M54543L
CONTROL LOGIC
MOTOR DRIVER
IC318 TC4069U
IC301 TC4069UBP (1/6)
IC301 (2/6)
IC301 (3/6)
IC301 (4/6)
IC301 (5/6)
TP3 SLACK KILLER
TP2 M2 TEST
Q319 DTC144ES
Q318 DTC144ES
STOP
STILL
Q314 DTC144ES
Q311 DTC144ES
Q313 DTC144ES
Q310 2SA1175
Q312 2SA1175
FWD
REV
RV2:REV TORQUE
RV3:FWD TORQUE

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
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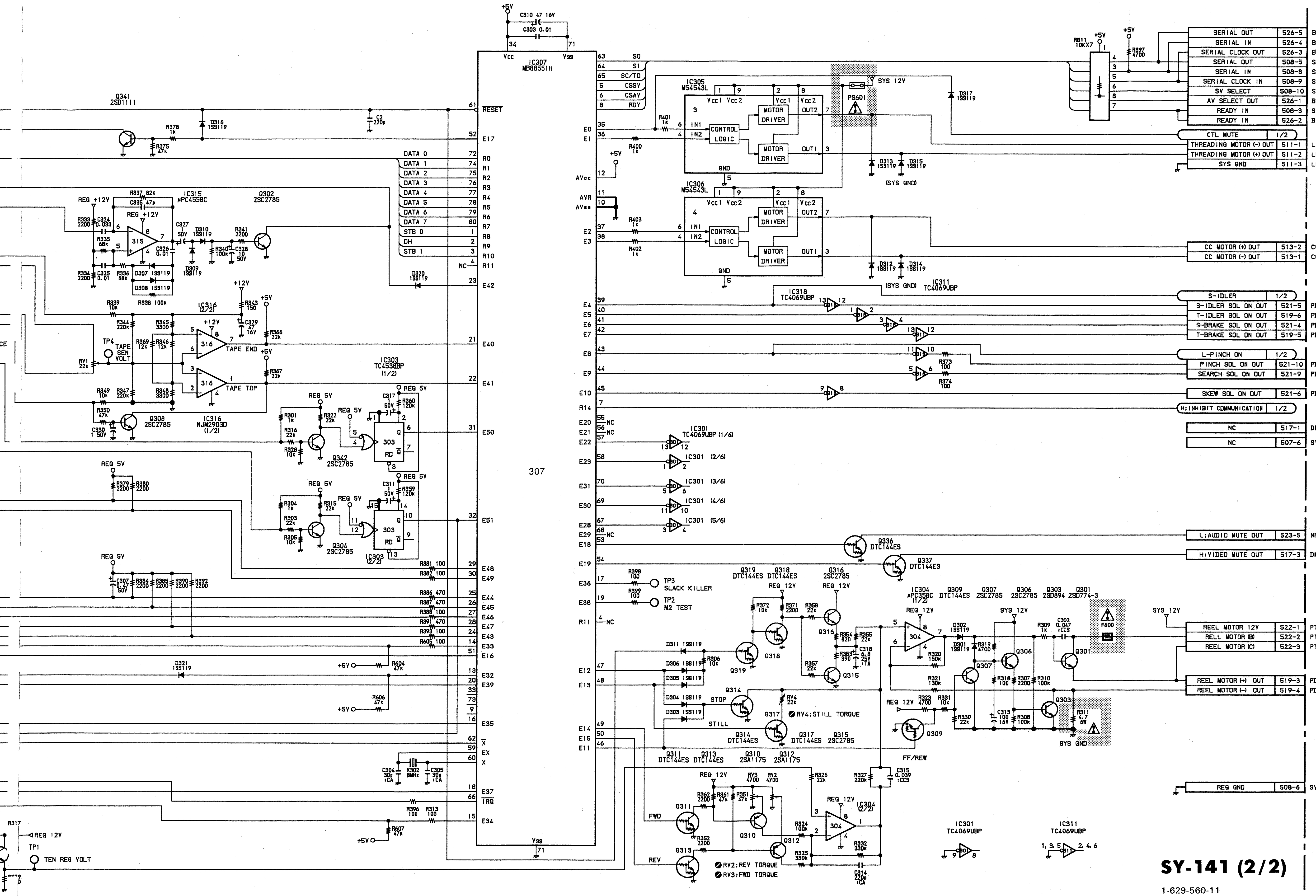
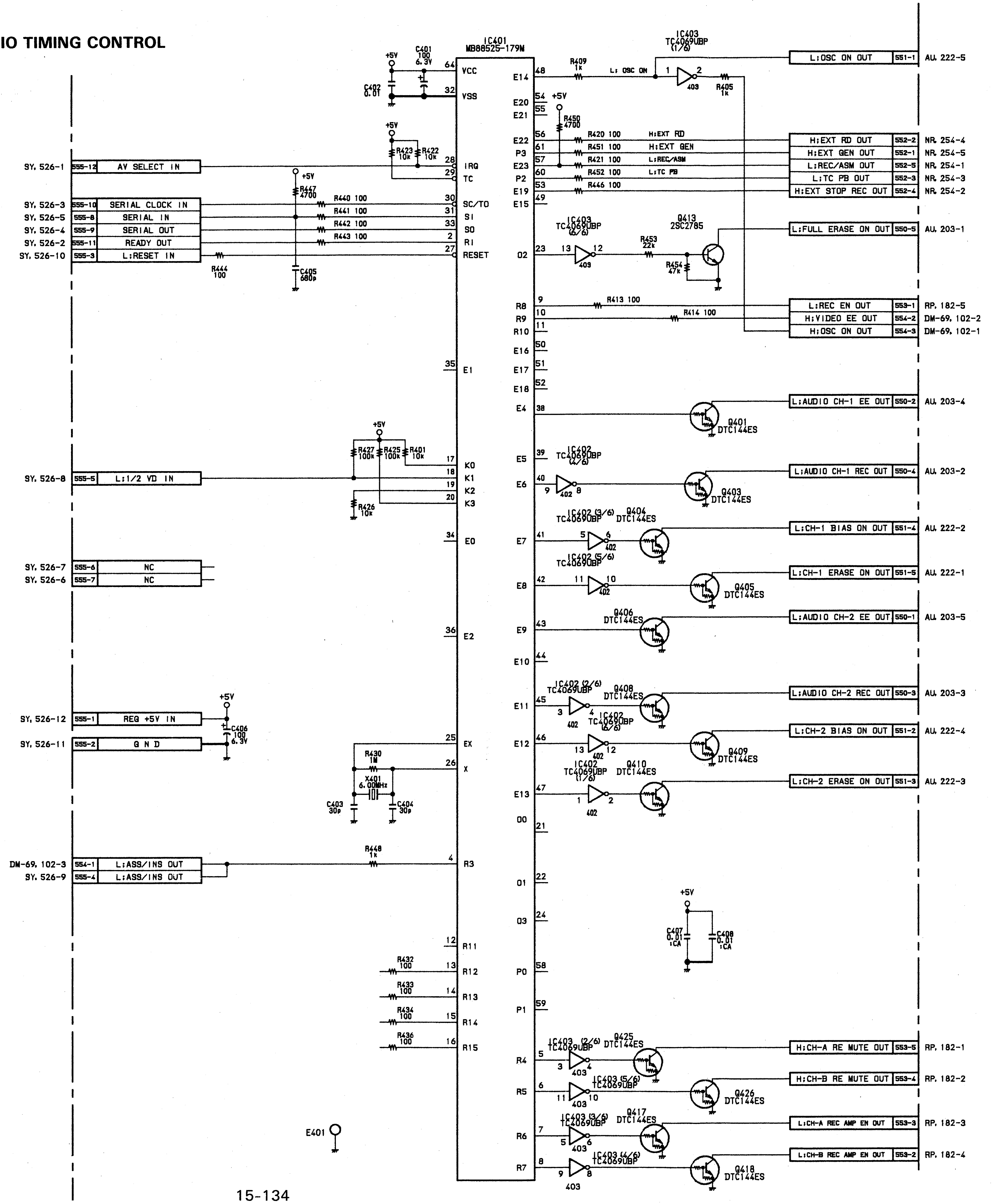

IC307
MB88551H
307
RESET
Q341 2SD1111
IC315 μPC4558C
Q302 2SC2785
IC316 (2/2)
TAPE END
TAPE TOP
IC316 NJM2903D (1/2)
TP4 TAPE SEN VOLT
RV1 22k
Q308 2SC2785
IC303 TC4538BP (1/2)
Q342 2SC2785
Q304 2SC2785
IC303 (2/2)
REG 5V
REG 12V
TP1 TEN REG VOLT
X302 8MHz
DATA 0
DATA 1
DATA 2
DATA 3
DATA 4
DATA 5
DATA 6
DATA 7
STB 0
DH
STB 1
IC305 M54543L
IC306 M54543L
CONTROL LOGIC
MOTOR DRIVER
PS601
SYS 12V
(SYS GND)
IC318 TC4069UBP
IC311 TC4069UBP
IC301 TC4069UBP (1/6)
IC301 (2/6)
IC301 (3/6)
IC301 (4/6)
IC301 (5/6)
Q336 DTC144ES
Q337 DTC144ES
TP3 SLACK KILLER
TP2 M2 TEST
IC304 μPC358C (1/2)
IC304 (2/2)
Q319 DTC144ES
Q318 DTC144ES
Q316 2SC2785
Q309 DTC144ES
Q307 2SC2785
Q306 2SC2785
Q303 2SD894
Q301 2SD774-3
Q314 DTC144ES
Q317 DTC144ES
Q315 2SC2785
Q311 DTC144ES
Q313 DTC144ES
Q310 2SA1175
Q312 2SA1175
STOP
STILL
FWD
REV
FF/REW
RV4:STILL TORQUE
RV2:REV TORQUE
RV3:FWD TORQUE
F600
SYS GND
SERIAL OUT 526-5 BC, 555-8
SERIAL IN 526-4 BC, 555-9
SERIAL CLOCK OUT 526-3 BC, 555-10
SERIAL OUT 508-5 SV, 405-8
SERIAL IN 508-8 SV, 405-5
SERIAL CLOCK IN 508-9 SV, 405-4
SV SELECT 508-10 SV, 405-3
AV SELECT OUT 526-1 BC, 555-12
READY IN 508-3 SV, 405-10
READY IN 526-2 BC, 555-11
CTL MUTE 1/2
THREADING MOTOR (-) OUT 511-1 LM-13, ⑨
THREADING MOTOR (+) OUT 511-2 LM-13, ⑦
SYS GND 511-3 LM-13, ⑧
CC MOTOR (+) OUT 513-2 CC-31, 831-9
CC MOTOR (-) OUT 513-1 CC-31, 831-10
S-IDLER 1/2
S-IDLER SOL ON OUT 521-5 PD-40, 808-8
T-IDLER SOL ON OUT 519-6 PD-41, 857-7
S-BRAKE SOL ON OUT 521-4 PD-40, 808-9
T-BRAKE SOL ON OUT 519-5 PD-41, 857-8
L-PINCH ON 1/2
PINCH SOL ON OUT 521-10 PD-40, 808-3
SEARCH SOL ON OUT 521-9 PD-40, 808-4
SKEW SOL ON OUT 521-6 PD-40, 808-7
H:INHIBIT COMMUNICATION 1/2
NC 517-1 DM-69, 101-6
NC 507-6 SV, 406-7
L:AUDIO MUTE OUT 523-5 NR, 256-4
H:VIDEO MUTE OUT 517-3 DM-69, 101-4
REEL MOTOR 12V 522-1 PT, ①
RELL MOTOR (B) 522-2 PT, ②
REEL MOTOR (C) 522-3 PT, ③
REEL MOTOR (+) OUT 519-3 PD-41, 857-10
REEL MOTOR (-) OUT 519-4 PD-41, 857-9
REG GND 508-6 SV, 405-7

SY-141 (2/2)

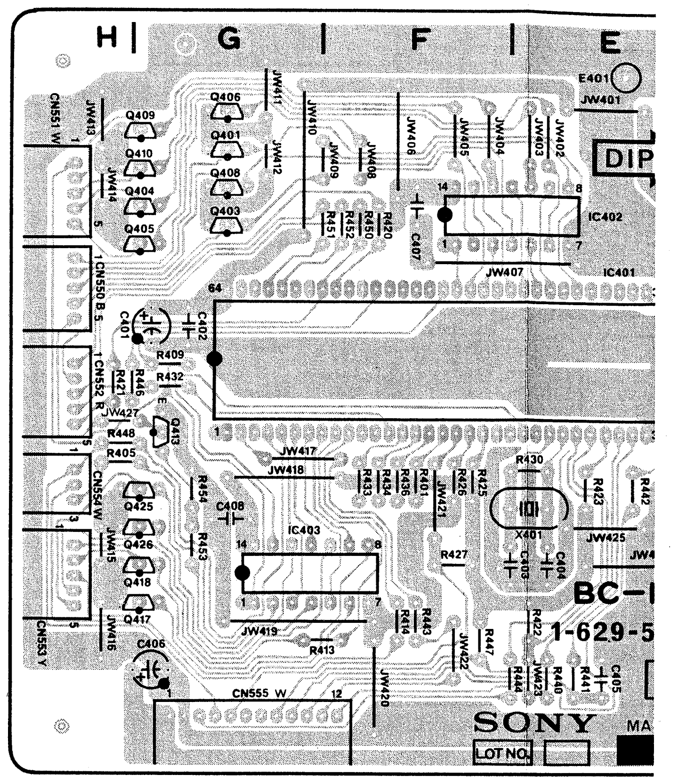
1-629-560-11
VO-9850

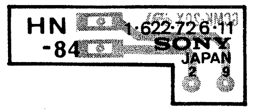
BC-16: VIDEO/AUDIO TIMING CONTROL
HN-84: TC HEAD


IC401
MB88525-179M
VCC
VSS
IRQ
TC
SC/TO
SI
SO
RI
RESET
E1
K0
K1
K2
K3
E0
E2
EX
X
R3
R11
R12
R13
R14
R15
SY. 526-1 555-12 AV SELECT IN
SY. 526-3 555-10 SERIAL CLOCK IN
SY. 526-5 555-8 SERIAL IN
SY. 526-4 555-9 SERIAL OUT
SY. 526-2 555-11 READY OUT
SY. 526-10 555-3 L:RESET IN
SY. 526-8 555-5 L:1/2 VD IN
SY. 526-7 555-6 NC
SY. 526-6 555-7 NC
SY. 526-12 555-1 REG +5V IN
SY. 526-11 555-2 GND
DM-69. 102-3 554-1 L:ASS/INS OUT
SY. 526-9 555-4 L:ASS/INS OUT
X401 6.00MHz
E401
IC403 TC4069UBP
Q413 2SC2785
L:OSC ON OUT 551-1 AU. 222-5
H:EXT RD OUT 552-2 NR. 254-4
H:EXT GEN OUT 552-1 NR. 254-5
L:REC/ASM OUT 552-5 NR. 254-1
L:TC PB OUT 552-3 NR. 254-3
H:EXT STOP REC OUT 552-4 NR. 254-2
L:FULL ERASE ON OUT 550-5 AU. 203-1
L:REC EN OUT 553-1 RP. 182-5
H:VIDEO EE OUT 554-2 DM-69. 102-2
H:OSC ON OUT 554-3 DM-69. 102-1
L:AUDIO CH-1 EE OUT 550-2 AU. 203-4
L:AUDIO CH-1 REC OUT 550-4 AU. 203-2
L:CH-1 BIAS ON OUT 551-4 AU. 222-2
L:CH-1 ERASE ON OUT 551-5 AU. 222-1
L:AUDIO CH-2 EE OUT 550-1 AU. 203-5
L:AUDIO CH-2 REC OUT 550-3 AU. 203-3
L:CH-2 BIAS ON OUT 551-2 AU. 222-4
L:CH-2 ERASE ON OUT 551-3 AU. 222-3
H:CH-A RE MUTE OUT 553-5 RP. 182-1
H:CH-B RE MUTE OUT 553-4 RP. 182-2
L:CH-A REC AMP EN OUT 553-3 RP. 182-3
L:CH-B REC AMP EN OUT 553-2 RP. 182-4
IC402 TC4069UBP
DTC144ES

BC-16

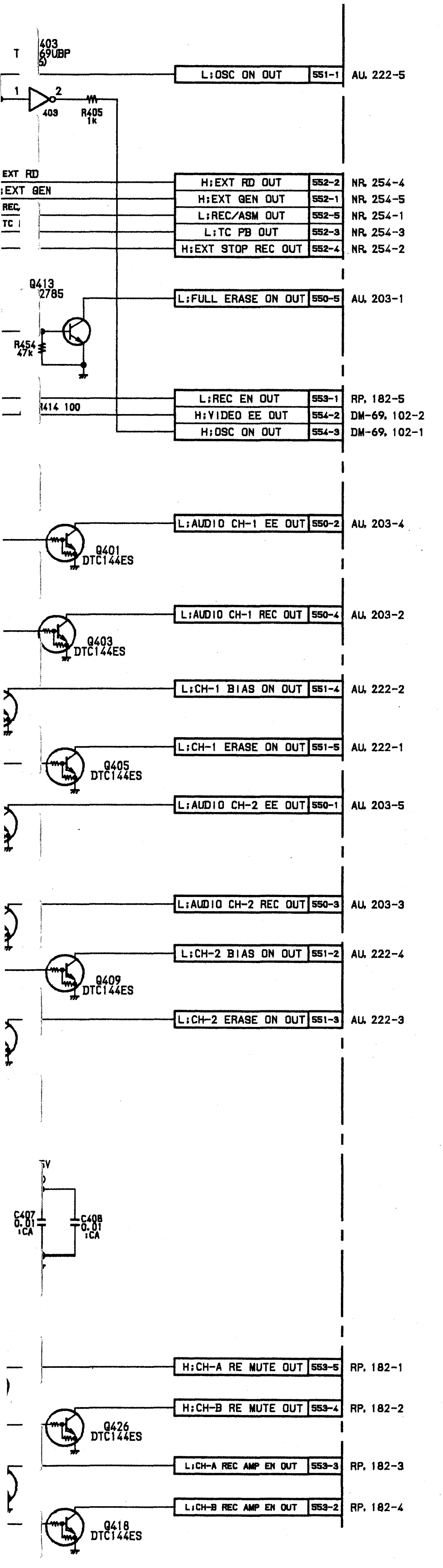
1-629-561-11
VO-9850


H
G
F
E
IC401
IC402
IC403
X401
SONY
LOT NO.
BC-1
1-629-5


HN
-84
1-622-726-11
SONY
JAPAN

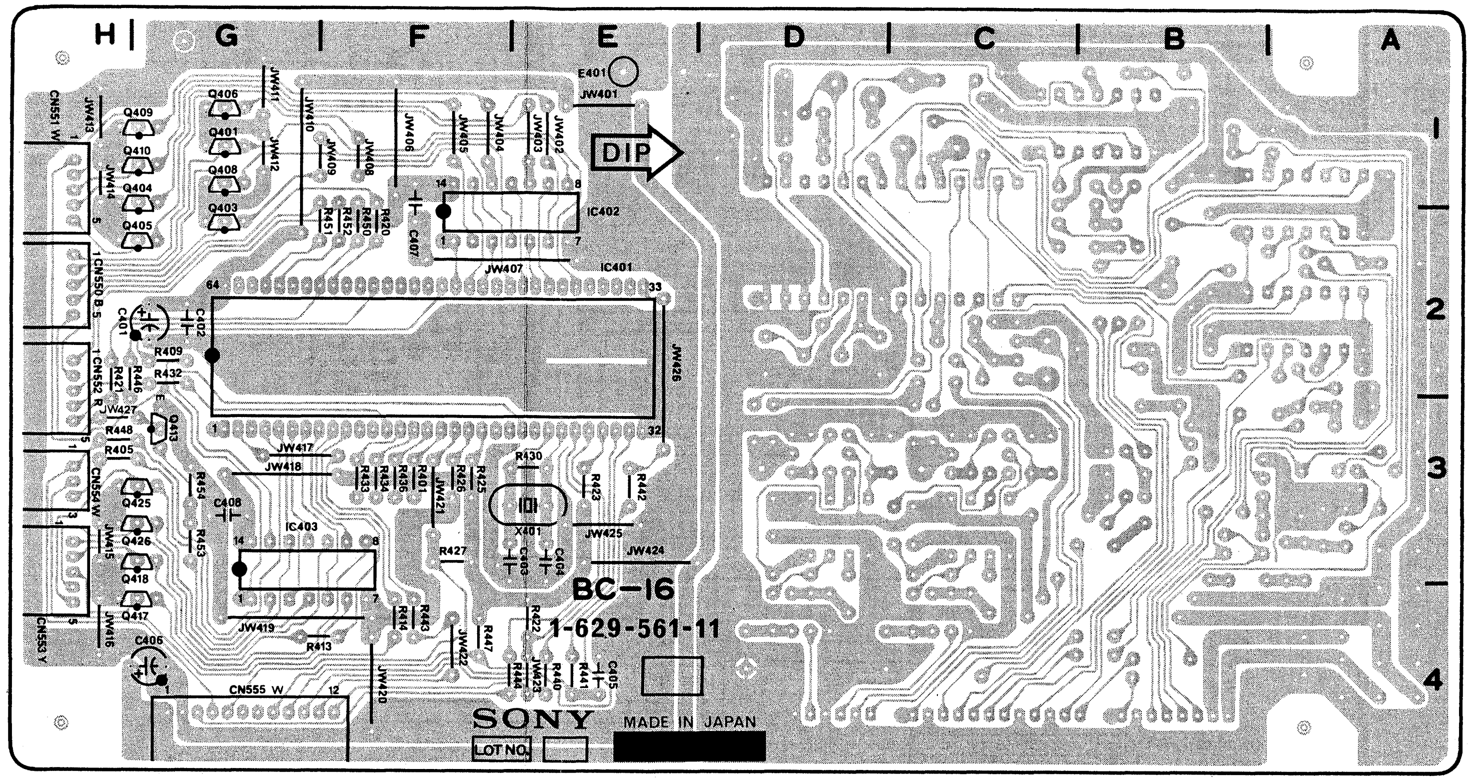
HN-84

—COMPONENT SIDE—
1-622-726-11
VO-9850
VO-9850P
VO-9800
VO-9800P


403
69UBP
R405
1k
L;OSC ON OUT 551-1 AU. 222-5
EXT RD
;EXT GEN
REC,
TC
H;EXT RD OUT 552-2 NR. 254-4
H;EXT GEN OUT 552-1 NR. 254-5
L;REC/ASM OUT 552-5 NR. 254-1
L;TC PB OUT 552-3 NR. 254-3
H;EXT STOP REC OUT 552-4 NR. 254-2
Q413
2785
R454
47k
L;FULL ERASE ON OUT 550-5 AU. 203-1
R414 100
L;REC EN OUT 553-1 RP. 182-5
H;VIDEO EE OUT 554-2 DM-69. 102-2
H;OSC ON OUT 554-3 DM-69. 102-1
L;AUDIO CH-1 EE OUT 550-2 AU. 203-4
Q401
DTC144ES
L;AUDIO CH-1 REC OUT 550-4 AU. 203-2
Q403
DTC144ES
L;CH-1 BIAS ON OUT 551-4 AU. 222-2
L;CH-1 ERASE ON OUT 551-5 AU. 222-1
Q405
DTC144ES
L;AUDIO CH-2 EE OUT 550-1 AU. 203-5
L;AUDIO CH-2 REC OUT 550-3 AU. 203-3
L;CH-2 BIAS ON OUT 551-2 AU. 222-4
Q409
DTC144ES
L;CH-2 ERASE ON OUT 551-3 AU. 222-3
5V
C407
0.01
:CA
C408
0.01
:CA
H;CH-A RE MUTE OUT 553-5 RP. 182-1
H;CH-B RE MUTE OUT 553-4 RP. 182-2
Q426
DTC144ES
L;CH-A REC AMP EN OUT 553-3 RP. 182-3
L;CH-B REC AMP EN OUT 553-2 RP. 182-4
Q418
DTC144ES

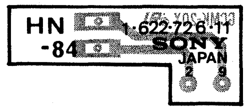
BC-16

1-629-561-11
VO-9850


H
G
F
E
D
C
B
A
1
2
3
4
DIP
IC401
IC402
IC403
X401
BC-16
1-629-561-11
SONY
MADE IN JAPAN
LOT NO.

BC-16

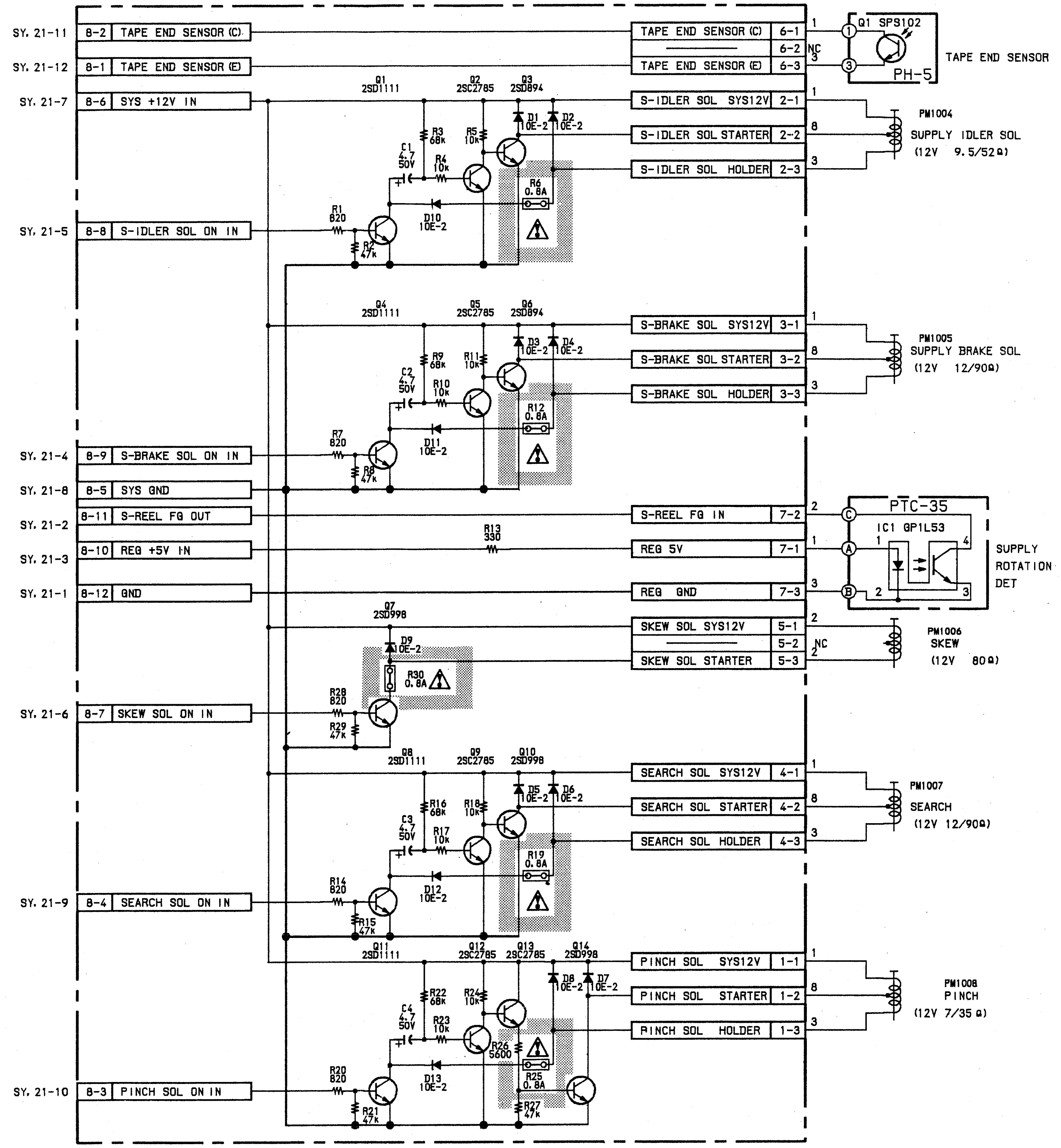
—COMPONENT SIDE—
1-629-561-11
VO-9850


HN
-84
1-622-726-11
SONY
JAPAN

HN-84

—COMPONENT SIDE—
1-622-726-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-40: PLUNGER SOLENOIDS


SY. 21-11
8-2 TAPE END SENSOR (C)
SY. 21-12
8-1 TAPE END SENSOR (E)
SY. 21-7
8-6 SYS +12V IN
SY. 21-5
8-8 S-IDLER SOL ON IN
SY. 21-4
8-9 S-BRAKE SOL ON IN
SY. 21-8
8-5 SYS GND
SY. 21-2
8-11 S-REEL FG OUT
SY. 21-3
8-10 REG +5V IN
SY. 21-1
8-12 GND
SY. 21-6
8-7 SKEW SOL ON IN
SY. 21-9
8-4 SEARCH SOL ON IN
SY. 21-10
8-3 PINCH SOL ON IN
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
Q7 2SD998
Q8 2SD1111
Q9 2SC2785
Q10 2SD998
Q11 2SD1111
Q12 2SC2785
Q13 2SC2785
Q14 2SD998
R1 820
R2 47k
R3 68k
R4 10k
R5 10k
R6 0.8A
C1 4.7 50V
D1 10E-2
D2 10E-2
D10 10E-2
R7 820
R8 47k
R9 68k
R10 10k
R11 10k
R12 0.8A
C2 4.7 50V
D3 10E-2
D4 10E-2
D11 10E-2
R13 330
D9 10E-2
R30 0.8A
R28 820
R29 47k
R14 820
R15 47k
R16 68k
R17 10k
R18 10k
R19 0.8A
C3 4.7 50V
D5 10E-2
D6 10E-2
D12 10E-2
R20 820
R21 47k
R22 68k
R23 10k
R24 10k
R26 5600
R25 0.8A
R27 47k
C4 4.7 50V
D8 10E-2
D7 10E-2
D13 10E-2
TAPE END SENSOR (C) 6-1
6-2
TAPE END SENSOR (E) 6-3
NC
Q1 SPS102
PH-5
TAPE END SENSOR
S-IDLER SOL SYS12V 2-1
S-IDLER SOL STARTER 2-2
S-IDLER SOL HOLDER 2-3
PM1004
SUPPLY IDLER SOL
(12V 9.5/52Ω)
S-BRAKE SOL SYS12V 3-1
S-BRAKE SOL STARTER 3-2
S-BRAKE SOL HOLDER 3-3
PM1005
SUPPLY BRAKE SOL
(12V 12/90Ω)
S-REEL FG IN 7-2
REG 5V 7-1
REG GND 7-3
PTC-35
IC1 GP1L53
SUPPLY ROTATION DET
SKEW SOL SYS12V 5-1
5-2
SKEW SOL STARTER 5-3
PM1006
SKEW
(12V 80Ω)
SEARCH SOL SYS12V 4-1
SEARCH SOL STARTER 4-2
SEARCH SOL HOLDER 4-3
PM1007
SEARCH
(12V 12/90Ω)
PINCH SOL SYS12V 1-1
PINCH SOL STARTER 1-2
PINCH SOL HOLDER 1-3
PM1008
PINCH
(12V 7/35 Ω)

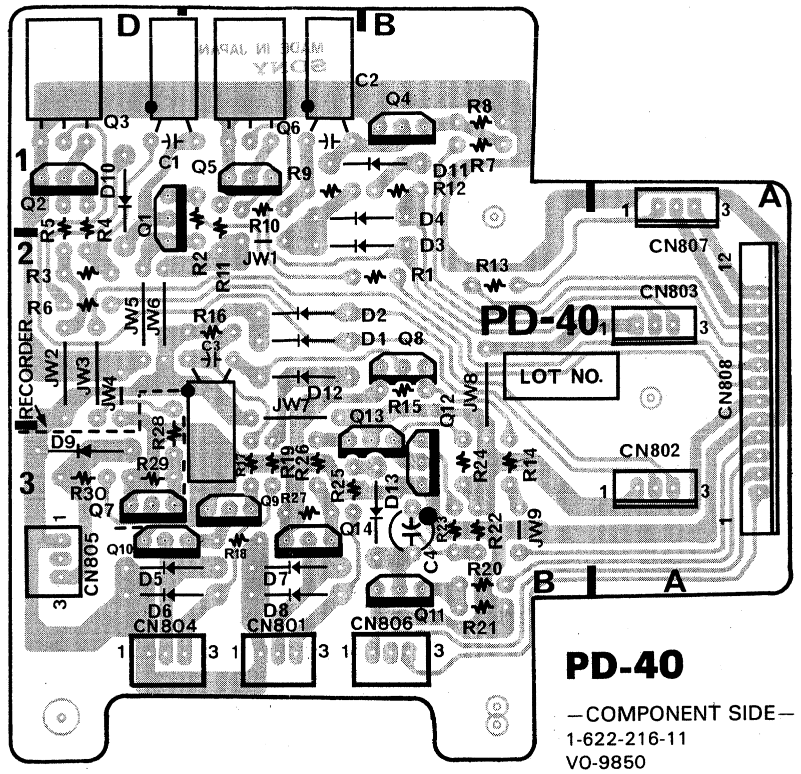
注意 1：⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

PD-40

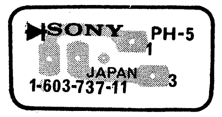
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-40: PLUNGER SOLENOIDS
PH-5: TAPE TOP/END DETECTOR
PTC-35: S/T REEL ROTATION DETECTOR


D
B
A
1
2
3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
C1
C2
C3
C4
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
RECORDER
PD-40
LOT NO.
CN801
CN802
CN803
CN804
CN805
CN806
CN807
CN808
12
MADE IN JAPAN
SONY

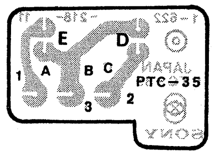
PD-40

–COMPONENT SIDE–
1-622-216-11
VO-9850
VO-9850P
VO-9800
VO-9800P


SONY
PH-5
JAPAN
1-603-737-11
1
3

PH-5

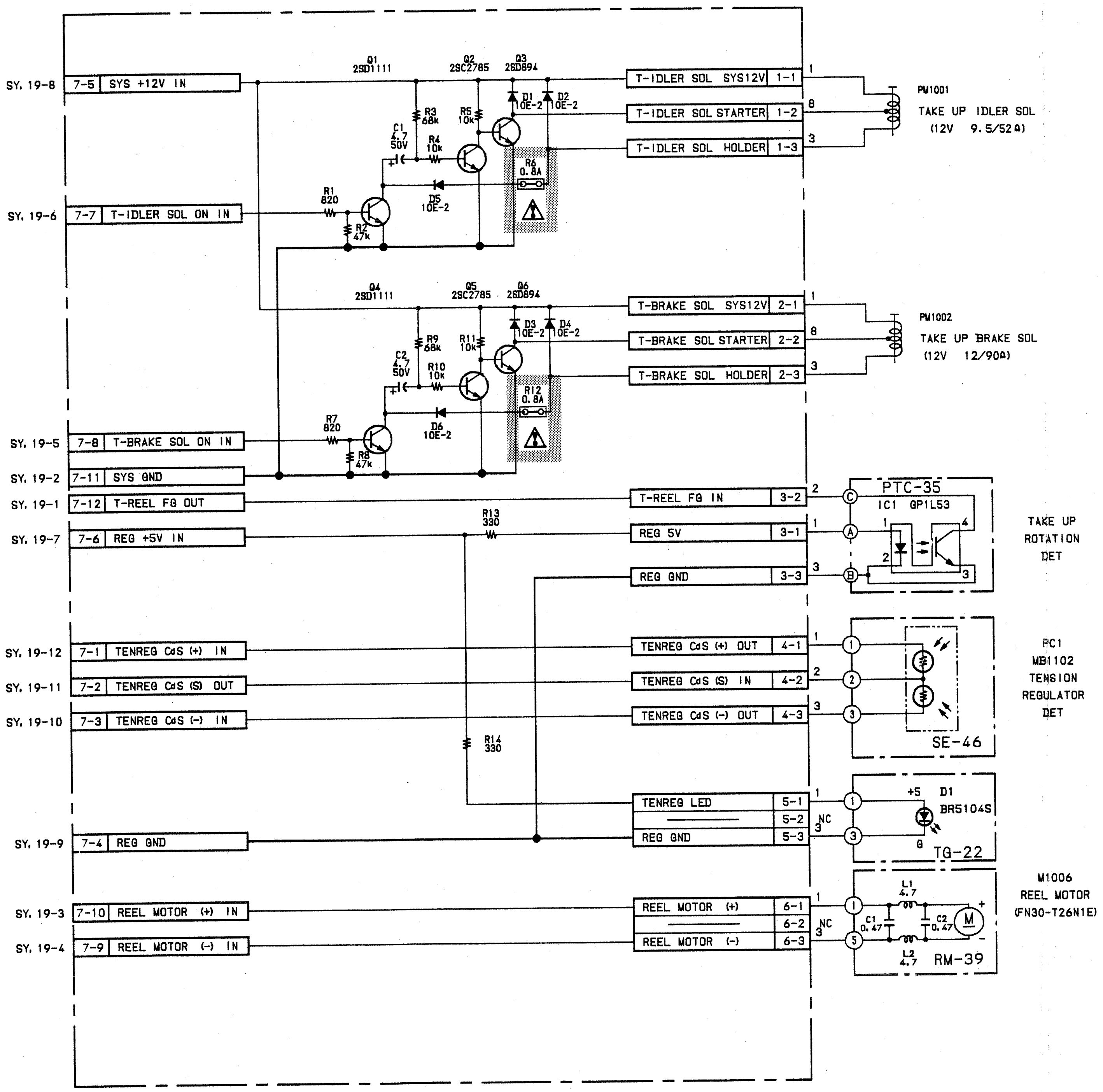
–COMPONENT SIDE–
1-603-737-11
VO-9850
VO-9850P
VO-9800
VO-9800P


1-622-218-11
E
D
A
B
C
1
2
3
JAPAN
PTC-35
SONY

PTC-35

–COMPONENT SIDE–
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P

PD-41: PLUNGER SOLENOIDS


SY, 19-8
7-5 SYS +12V IN
SY, 19-6
7-7 T-IDLER SOL ON IN
SY, 19-5
7-8 T-BRAKE SOL ON IN
SY, 19-2
7-11 SYS GND
SY, 19-1
7-12 T-REEL FG OUT
SY, 19-7
7-6 REG +5V IN
SY, 19-12
7-1 TENREG CdS (+) IN
SY, 19-11
7-2 TENREG CdS (S) OUT
SY, 19-10
7-3 TENREG CdS (-) IN
SY, 19-9
7-4 REG GND
SY, 19-3
7-10 REEL MOTOR (+) IN
SY, 19-4
7-9 REEL MOTOR (-) IN
Q1 2SD1111
Q2 2SC2785
Q3 2SD894
Q4 2SD1111
Q5 2SC2785
Q6 2SD894
R1 820
R2 47k
R3 68k
R4 10k
R5 10k
C1 4.7 50V
D1 10E-2
D2 10E-2
D5 10E-2
R6 0.8A
R7 820
R8 47k
R9 68k
R10 10k
R11 10k
C2 4.7 50V
D3 10E-2
D4 10E-2
D6 10E-2
R12 0.8A
R13 330
R14 330
T-IDLER SOL SYS12V 1-1
T-IDLER SOL STARTER 1-2
T-IDLER SOL HOLDER 1-3
PM1001
TAKE UP IDLER SOL
(12V 9.5/52Ω)
T-BRAKE SOL SYS12V 2-1
T-BRAKE SOL STARTER 2-2
T-BRAKE SOL HOLDER 2-3
PM1002
TAKE UP BRAKE SOL
(12V 12/90Ω)
T-REEL FG IN 3-2
REG 5V 3-1
REG GND 3-3
PTC-35
IC1 GP1L53
TAKE UP ROTATION DET
TENREG CdS (+) OUT 4-1
TENREG CdS (S) IN 4-2
TENREG CdS (-) OUT 4-3
PC1 MB1102
TENSION REGULATOR DET
SE-46
TENREG LED 5-1
5-2
REG GND 5-3
+5 D1
BR5104S
TG-22
NC
REEL MOTOR (+) 6-1
6-2
REEL MOTOR (-) 6-3
L1 4.7
C1 0.47
C2 0.47
L2 4.7
M
RM-39
M1006
REEL MOTOR
(FN30-T26N1E)

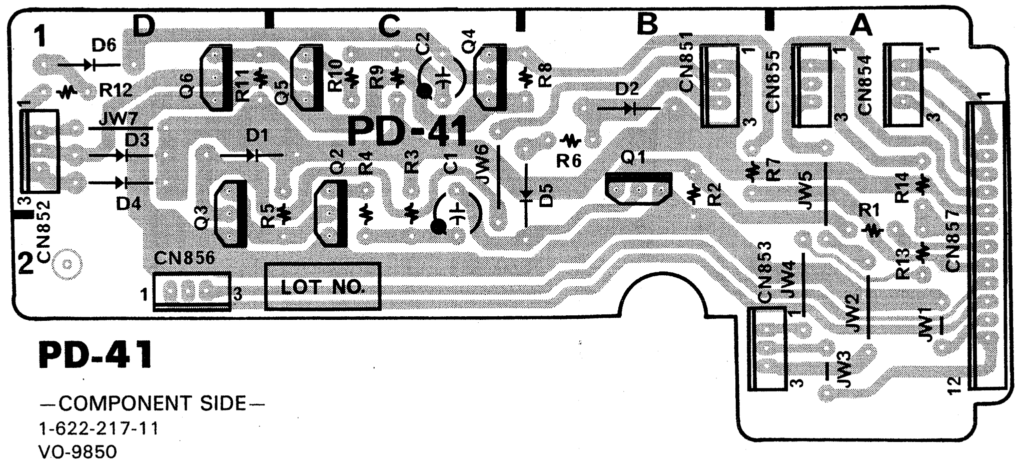
PD-41

1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P

注意 1：⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

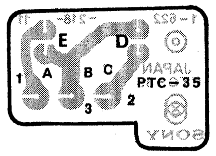
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.

PD-41: PLUNGER SOLENOIDS
PTC-35: S/T REEL ROTATION DETECTOR
RM-39: REEL MOTOR
SE-46: TENSION REGULATOR DETECTOR
TG-22: TENSION REGULATOR LED


1
2
D
C
B
A
D6
R12
JW7
D3
D4
Q6
R11
Q5
R10
R9
C2
Q4
R8
D1
Q2
R4
R3
C1
JW6
D5
R6
D2
Q1
R2
CN851
CN855
CN854
CN852
CN856
CN853
CN857
Q3
R5
R7
JW5
R1
R14
R13
JW4
JW2
JW3
JW1
LOT NO.
PD-41

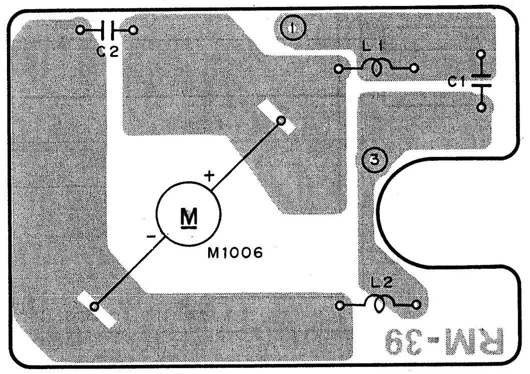
PD-41

—COMPONENT SIDE—
1-622-217-11
VO-9850
VO-9850P
VO-9800
VO-9800P


E
D
A
B
C
PTC-35
1
2
3
SONY

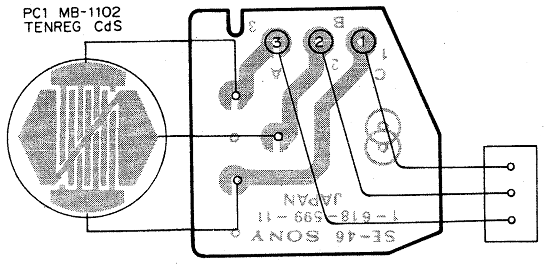
PTC-35

—COMPONENT SIDE—
1-622-218-11
VO-9850
VO-9850P
VO-9800
VO-9800P


C2
①
L1
C1
③
M
M1006
L2
⑤
RM-39

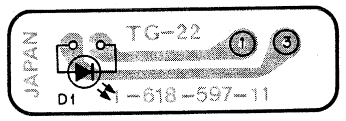
RM-39

—COMPONENT SIDE—
1-618-873-11
VO-9850
VO-9850P
VO-9800
VO-9800P


PC1 MB-1102
TENREG CdS
③
②
①
A
B
C
JAPAN
1-618-599-11
SE-46 SONY

SE-46

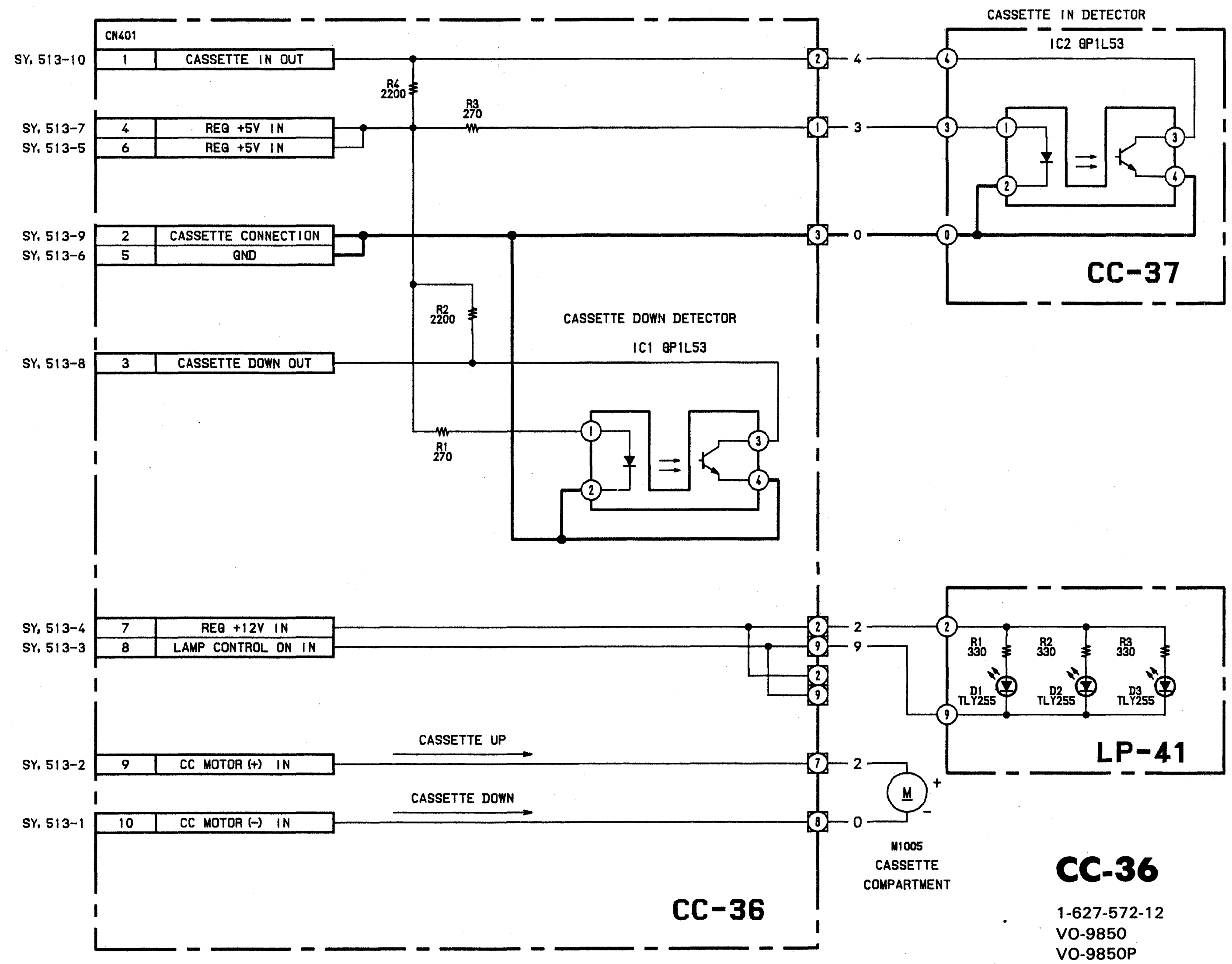
—SOLDERING SIDE—
1-618-599-11
VO-9850
VO-9850P
VO-9800
VO-9800P


JAPAN
TG-22
①
③
D1
1-618-597-11

TG-22

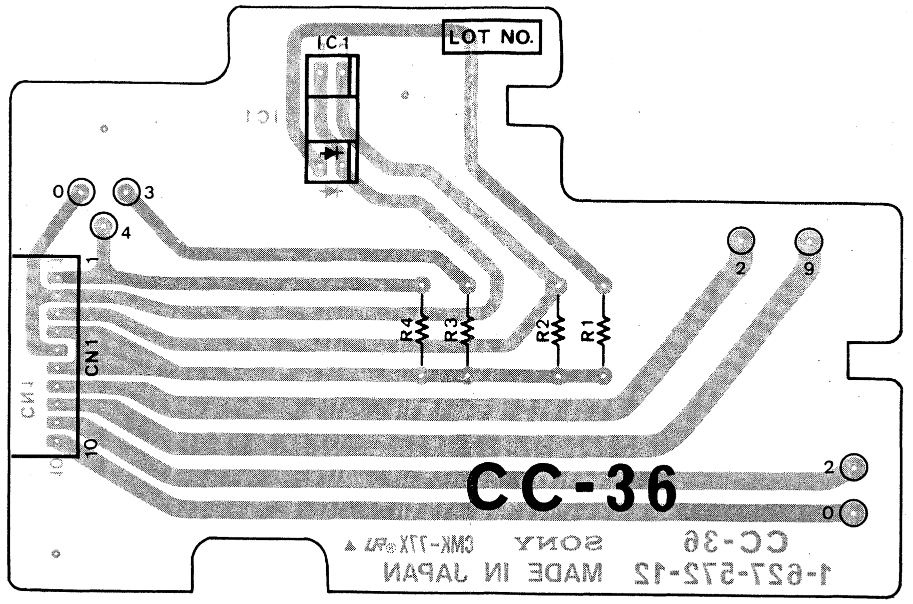
—COMPONENT SIDE—
1-618-597-11
VO-9850
VO-9850P
VO-9800
VO-9800P

CC-36: JUNCTION BOARD FOR CC-37, LP-41
CC-37: CASSETTE IN DETECTOR
LP-41: CASSETTE COMPARTMENT LAMP


CN401
SY, 513-10
1
CASSETTE IN OUT
SY, 513-7
4
REG +5V IN
SY, 513-5
6
REG +5V IN
SY, 513-9
2
CASSETTE CONNECTION
SY, 513-6
5
GND
SY, 513-8
3
CASSETTE DOWN OUT
SY, 513-4
7
REG +12V IN
SY, 513-3
8
LAMP CONTROL ON IN
SY, 513-2
9
CC MOTOR (+) IN
SY, 513-1
10
CC MOTOR (-) IN
R4 2200
R3 270
R2 2200
R1 270
CASSETTE DOWN DETECTOR
IC1 GP1L53
CASSETTE IN DETECTOR
IC2 GP1L53
CC-37
CASSETTE UP
CASSETTE DOWN
M
M1005
CASSETTE COMPARTMENT
R1 330
R2 330
R3 330
D1 TLY255
D2 TLY255
D3 TLY255
LP-41
CC-36

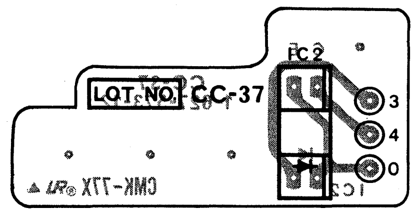
CC-36

1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P


IC1
LOT NO.
0
3
4
2
9
CN1
1
10
R4
R3
R2
R1
2
0
CC-36
CC-36
SONY
CMK-77X
1-627-572-12
MADE IN JAPAN

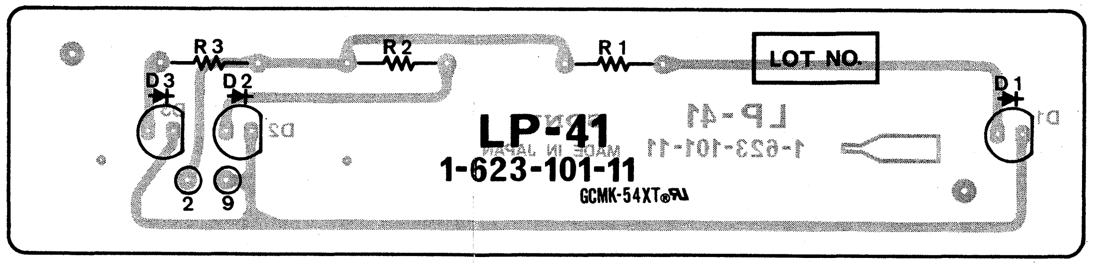
CC-36

—COMPONENT SIDE—
1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P


IC2
LOT NO.
CC-37
3
4
0
CMK-77X

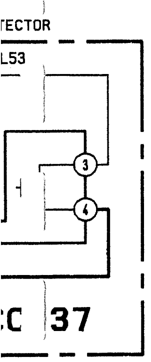
CC-37

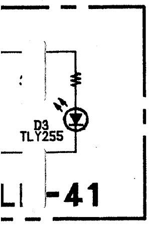
—COMPONENT SIDE—
1-627-573-12
VO-9850
VO-9850P
VO-9800
VO-9800P


R3
R2
R1
LOT NO.
D3
D2
D1
LP-41
1-623-101-11
GCMK-54XT
2
9

LP-41

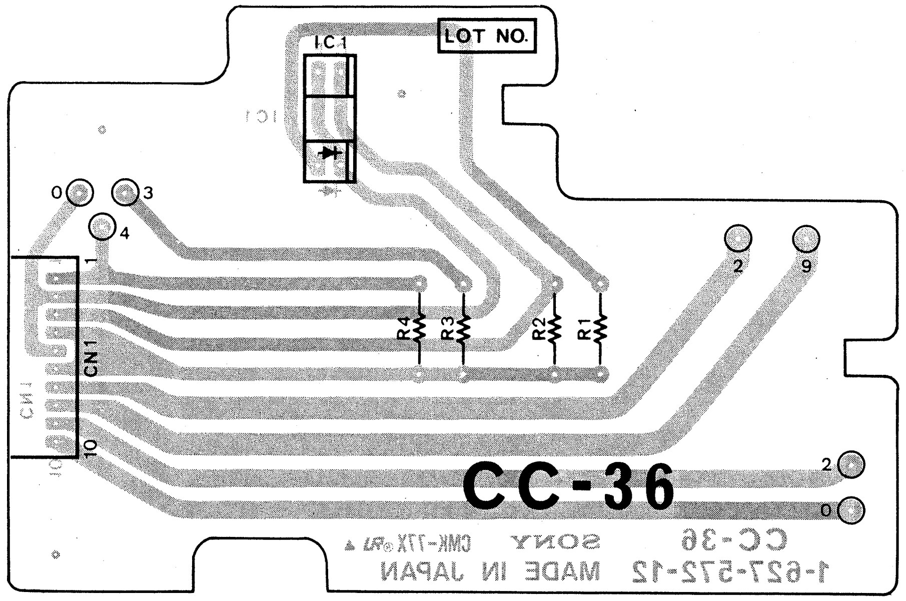
—COMPONENT SIDE—
1-623-101-11
VO-9850
VO-9850P
VO-9800
VO-9800P


TECTOR
L53
C 37


D3
TLY255
LI -41

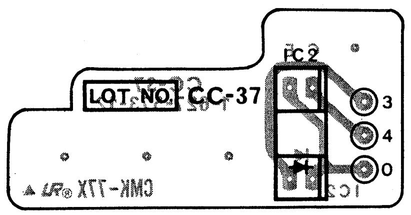
-36

7-5 -12


IC1
LOT NO.
0
3
4
1
CN1
10
R4
R3
R2
R1
2
9
2
0
CC-36
CMK-77X

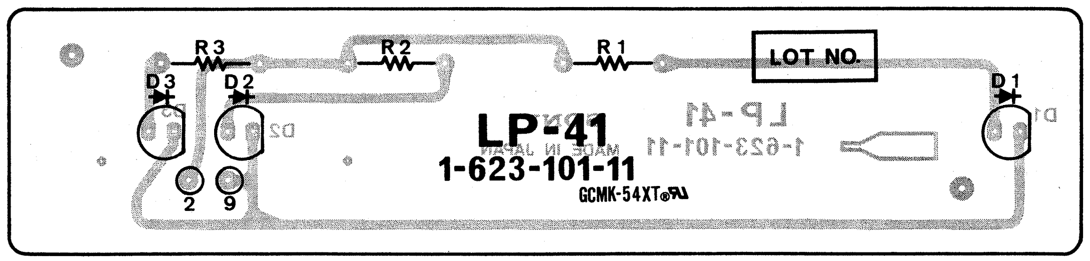
CC-36

—COMPONENT SIDE—
1-627-572-12
VO-9850
VO-9850P
VO-9800
VO-9800P


IC2
LOT NO.
CC-37
3
4
0
CMK-77X

CC-37

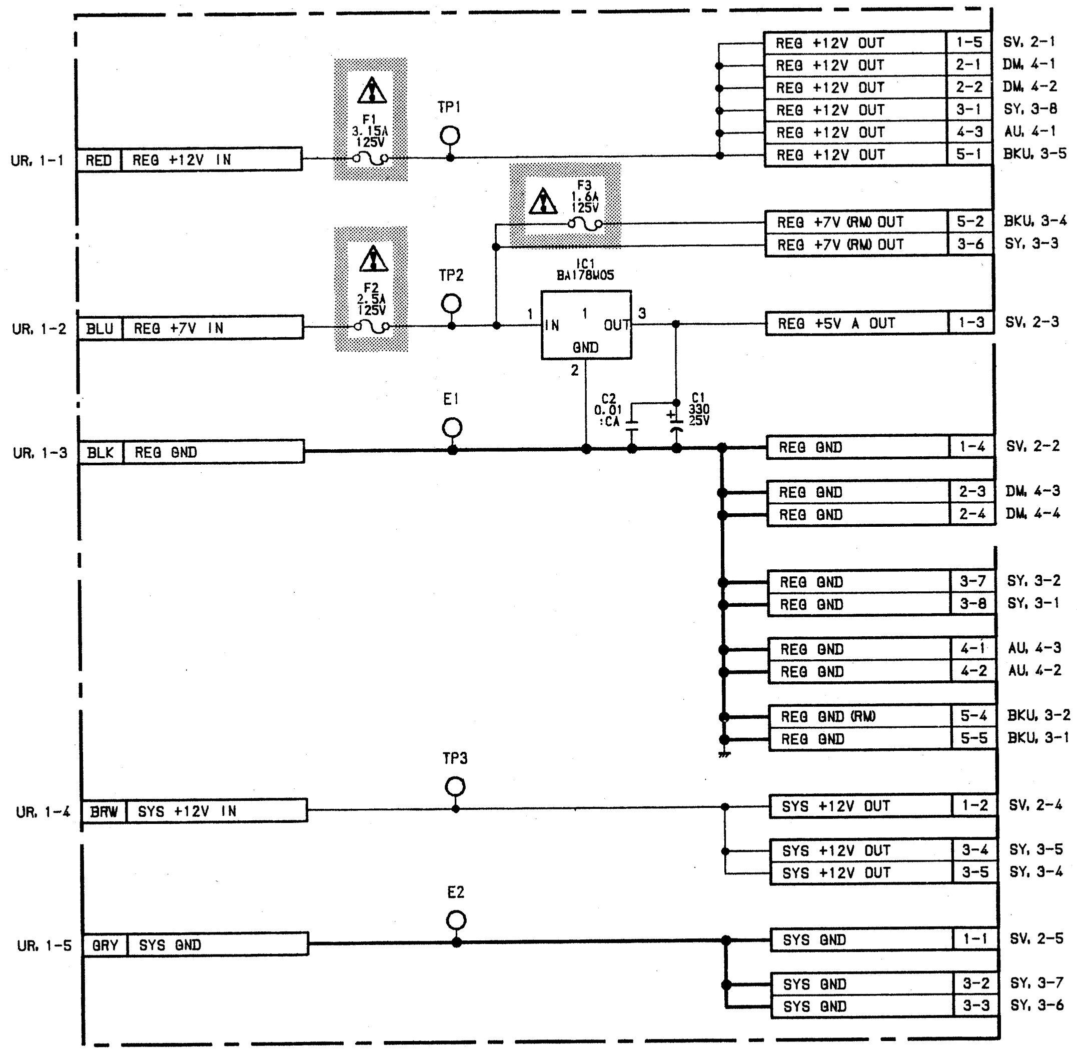
—COMPONENT SIDE—
1-627-573-12
VO-9850
VO-9850P
VO-9800
VO-9800P


R3
R2
R1
LOT NO.
D3
D2
D1
LP-41
1-623-101-11
GCMK-54XT
2
9

LP-41

—COMPONENT SIDE—
1-623-101-11
VO-9850
VO-9850P
VO-9800
VO-9800P

DC-31D: DC SUPPLY
SW-315: SELECT SWITCH
UR-01: SWITCHING REGULATOR

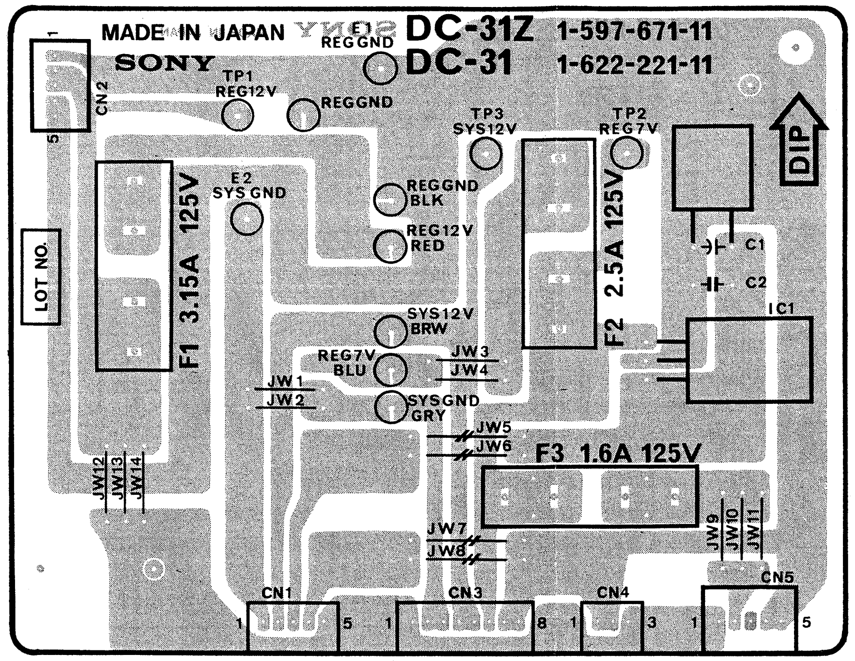

UR, 1-1
RED REG +12V IN
F1 3.15A 125V
TP1
REG +12V OUT 1-5 SV, 2-1
REG +12V OUT 2-1 DM, 4-1
REG +12V OUT 2-2 DM, 4-2
REG +12V OUT 3-1 SY, 3-8
REG +12V OUT 4-3 AU, 4-1
REG +12V OUT 5-1 BKU, 3-5
F3 1.6A 125V
REG +7V (RM) OUT 5-2 BKU, 3-4
REG +7V (RM) OUT 3-6 SY, 3-3
UR, 1-2
BLU REG +7V IN
F2 2.5A 125V
TP2
IC1 BA178M05
IN OUT GND
REG +5V A OUT 1-3 SV, 2-3
E1
C2 0.01 :CA
C1 330 25V
UR, 1-3
BLK REG GND
REG GND 1-4 SV, 2-2
REG GND 2-3 DM, 4-3
REG GND 2-4 DM, 4-4
REG GND 3-7 SY, 3-2
REG GND 3-8 SY, 3-1
REG GND 4-1 AU, 4-3
REG GND 4-2 AU, 4-2
REG GND (RM) 5-4 BKU, 3-2
REG GND 5-5 BKU, 3-1
TP3
UR, 1-4
BRW SYS +12V IN
SYS +12V OUT 1-2 SV, 2-4
SYS +12V OUT 3-4 SY, 3-5
SYS +12V OUT 3-5 SY, 3-4
E2
UR, 1-5
GRY SYS GND
SYS GND 1-1 SV, 2-5
SYS GND 3-2 SY, 3-7
SYS GND 3-3 SY, 3-6

DC-31D

1-622-221-11
VO-9850
VO-9800

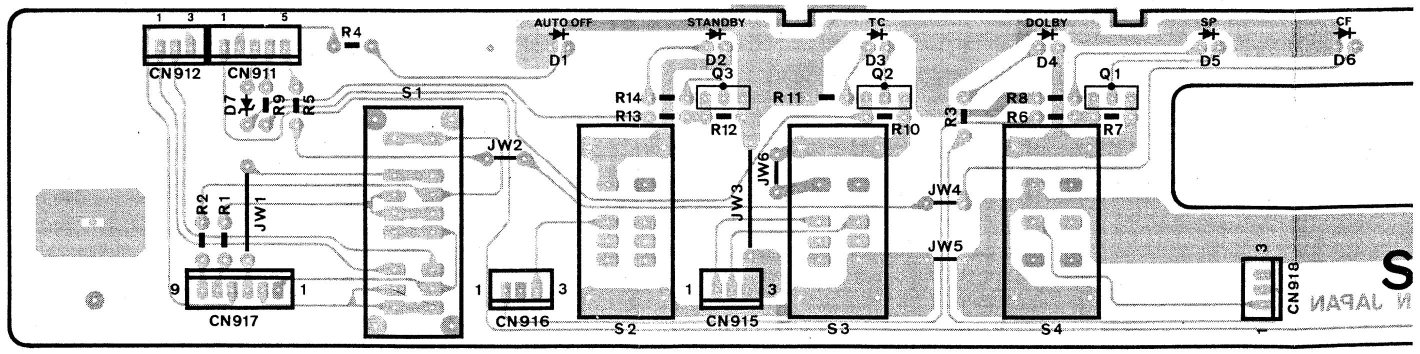
注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

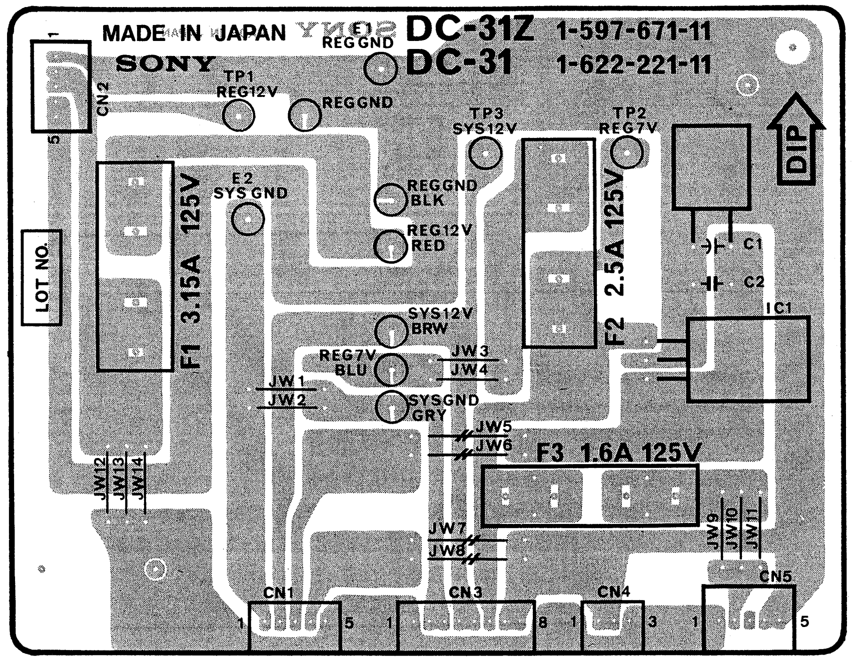
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.


MADE IN JAPAN
SONY
DC-31Z 1-597-671-11
DC-31 1-622-221-11
E1 REGGND
TP1 REG12V
REGGND
TP3 SYS12V
TP2 REG7V
DIP
CN2
LOT NO.
F1 3.15A 125V
E2 SYS GND
REGGND BLK
REG12V RED
F2 2.5A 125V
C1
C2
IC1
SYS12V BRW
REG7V BLU
SYSGND GRY
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
F3 1.6A 125V
CN1
CN3
CN4
CN5

DC-31D

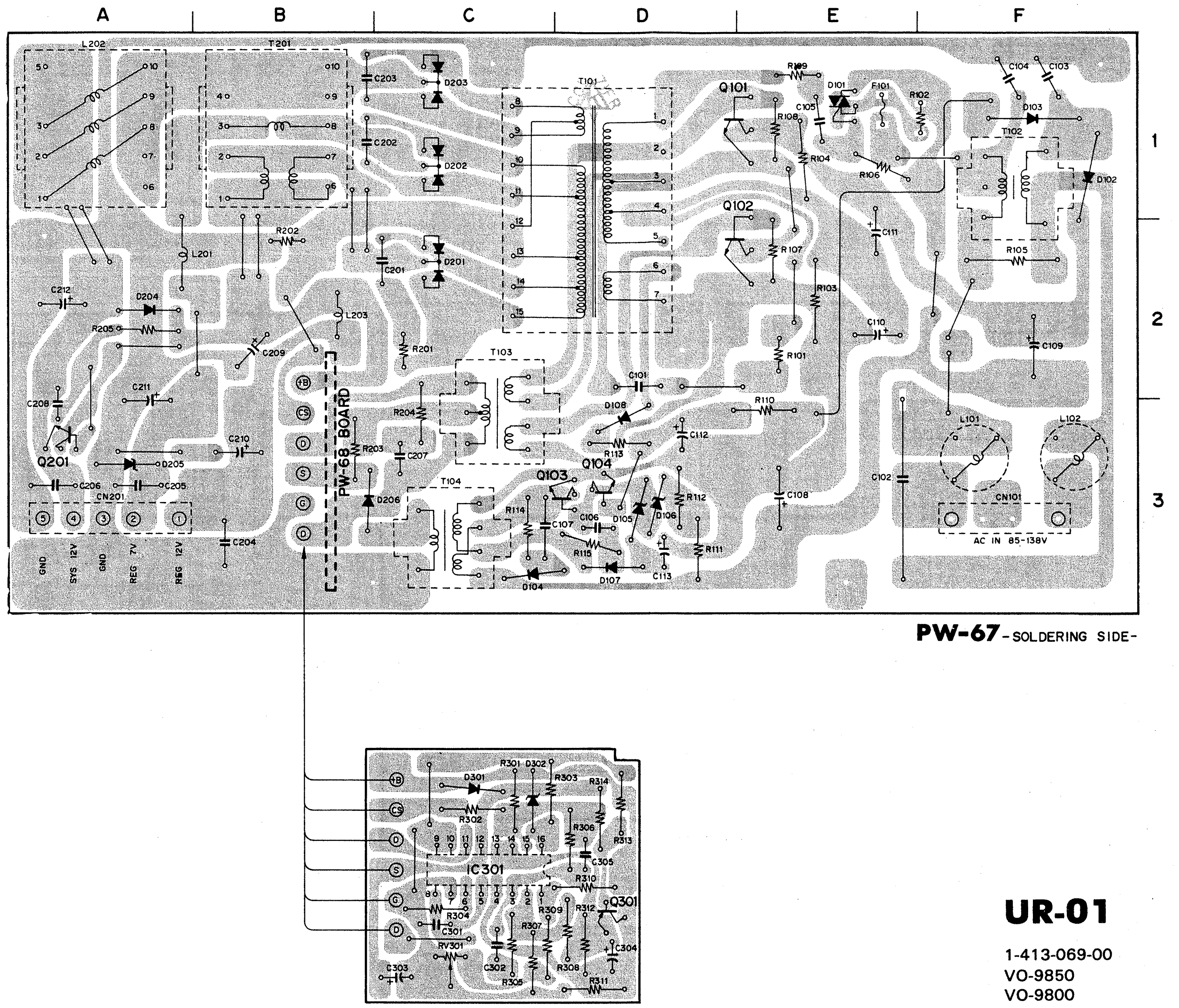
—COMPONENT SIDE—
1-622-221-11
VO-9850
VO-9800


CN912
CN911
R4
AUTO OFF
D1
STANDBY
D2
TC
D3
DOLBY
D4
SP
D5
CF
D6
Q3
Q2
Q1
R14
R13
R11
R12
R10
R3
R8
R6
R7
D7
R9
R5
S1
JW2
JW6
JW3
JW4
JW5
R2
R1
JW1
CN917
CN916
S2
CN915
S3
S4
CN918


MADE IN JAPAN
SONY
DC-31Z 1-597-671-11
DC-31 1-622-221-11
CN2
TP1 REG12V
REG GND
REGGND
TP3 SYS12V
TP2 REG7V
DIP
LOT NO.
F1 3.15A 125V
E2 SYS GND
REGGND BLK
REG12V RED
F2 2.5A 125V
C1
C2
IC1
SYS12V BRW
REG7V BLU
JW3
JW4
JW1
JW2
SYSGND GRY
JW5
JW6
F3 1.6A 125V
JW12
JW13
JW14
JW7
JW8
JW9
JW10
JW11
CN1
CN3
CN4
CN5

DC-31D

—COMPONENT SIDE—
1-622-221-11
VO-9850
VO-9800

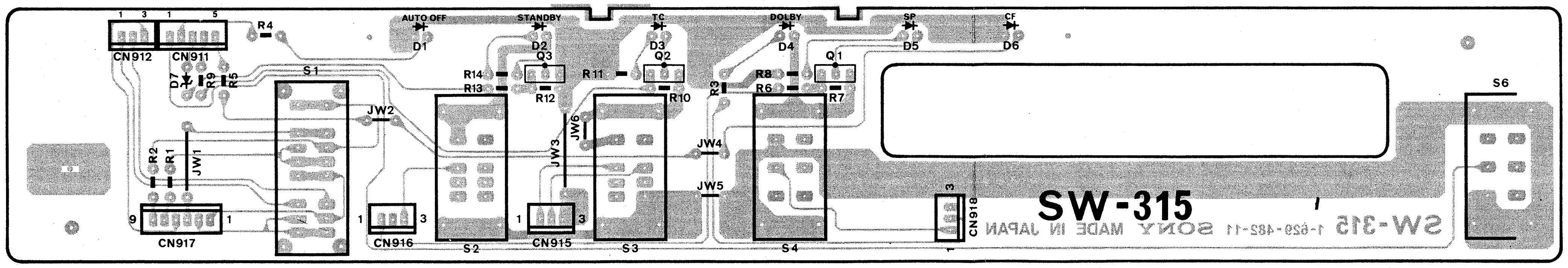

A
B
C
D
E
F
1
2
3
L202
T201
C203
D203
C202
D202
C201
D201
T101
Q101
Q102
D101
F101
R102
D103
T102
D102
C104
C103
C105
R104
R106
R107
C111
R103
R105
L201
R202
D204
C212
R205
L203
C209
R201
T103
C101
D108
C112
C110
C109
R101
R110
C211
C208
C210
PW-68 BOARD
R204
R203
C207
T104
Q103
Q104
R113
R114
C106
C107
D105
D106
R112
C108
C102
L101
L102
CN101
AC IN 85-138V
Q201
C206
C205
D205
D206
CN201
C204
R115
R111
C113
D104
D107
GND
SYS 12V
GND
REG 7V
REG 12V
R301
D302
D301
R303
R314
R302
R306
R313
IC301
C305
R310
R304
R309
R312
Q301
C301
R307
C304
RV301
C303
C302
R308
R305
R311

PW-67 -SOLDERING SIDE-

PW-68 -SOLDERING SIDE-

UR-01

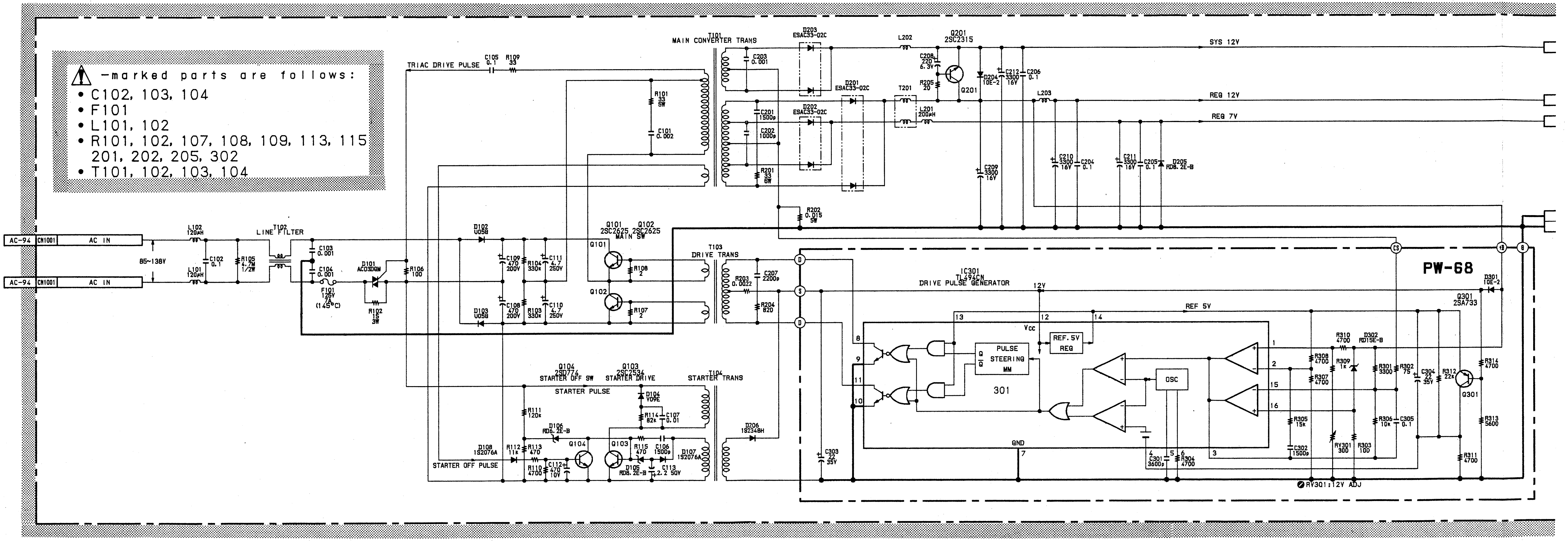
1-413-069-00
VO-9850
VO-9800


CN912
CN911
R4
AUTO OFF
D1
STANDBY
D2
Q3
TC
D3
Q2
DOLBY
D4
Q1
SP
D5
CF
D6
R14
R13
R12
R11
R10
R3
R8
R6
R7
D7
R9
R5
S1
JW2
JW6
JW3
JW4
JW5
JW1
R2
R1
S6
CN917
CN916
CN915
CN918
S2
S3
S4
SW-315
SW-315 1-629-482-11 SONY MADE IN JAPAN

SW-315

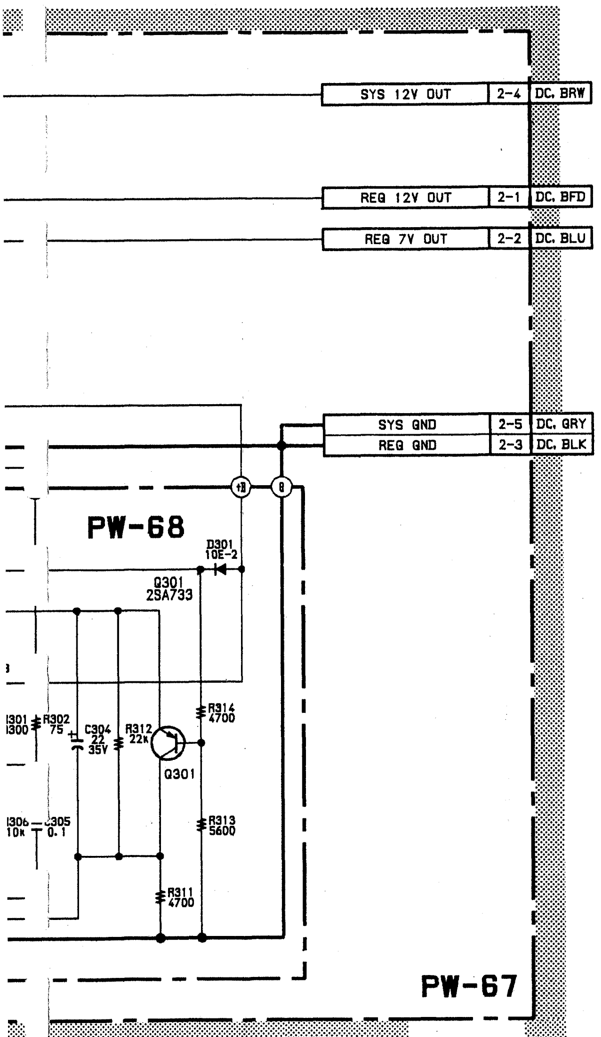
—COMPONENT SIDE—
1-629-482-11
VO-9850

UR-01: SWITCHING REGULATOR
SW-315: SELECT SWITCH


⚠ -marked parts are follows:
• C102, 103, 104
• F101
• L101, 102
• R101, 102, 107, 108, 109, 113, 115
201, 202, 205, 302
• T101, 102, 103, 104
AC-94
CN1001
AC IN
AC-94
CN1001
AC IN
85~138V
L102
120μH
L101
120μH
C102
0.1
R105
4.7M
1/2W
T102
LINE FILTER
C103
0.001
C104
0.001
F101
125V
7A
(145°C)
D101
AC03DGM
R102
15
3W
R106
100
TRIAC DRIVE PULSE
C105
0.1
R109
33
R101
33
5W
C101
0.002
D102
U05B
D103
U05B
C109
470
200V
R104
330k
C111
4.7
250V
C108
470
200V
R103
330k
C110
4.7
250V
Q101 Q102
2SC2625 2SC2625
MAIN SW
Q101
Q102
R108
2
R107
2
T101
MAIN CONVERTER TRANS
C203
0.001
C201
1500p
C202
1000p
R201
33
5W
D203
ESAC33-02C
D202
ESAC33-02C
D201
ESAC33-02C
R202
0.015
5W
L202
T201
L201
200μH
Q201
2SC2315
C208
220
6.3V
R205
20
Q201
D204
10E-2
C212
3300
16V
C206
0.1
C209
3300
16V
L203
C210
3300
16V
C204
0.1
C211
3300
16V
C205
0.1
D205
RD8.2E-B
SYS 12V
REG 12V
REG 7V
T103
DRIVE TRANS
R203
0.0022
C207
2200p
R204
820
Q104
2SD774
STARTER OFF SW
Q103
2SC2534
STARTER DRIVE
T104
STARTER TRANS
STARTER PULSE
D104
V09E
R114
82k
C107
0.01
R111
120k
D106
RD6.2E-B
D108
1S2076A
R112
11k
R113
470
R110
4700
C112
470
10V
Q104
Q103
R115
470
C106
1500p
D107
1S2076A
D105
RD8.2E-B
C113
2.2 50V
STARTER OFF PULSE
D206
1S2348H
C303
22
35V
D
S
D
CS
+B
B
PW-68
IC301
TL494CN
DRIVE PULSE GENERATOR
12V
REF 5V
13
12
14
Vcc
REF.5V
REG
PULSE
STEERING
MM
Q
Q̄
301
OSC
8
9
11
10
1
2
15
16
3
GND
7
4
5
6
C301
3600p
R304
4700
D301
10E-2
Q301
2SA733
R310
4700
D302
RD15E-B
R308
4700
R307
4700
R309
1k
R301
3300
R302
75
C304
22
35V
R312
22k
Q301
R314
4700
R313
5600
R311
4700
R305
15k
C302
1500p
RV301
300
R303
100
R306
10k
C305
0.1
RV301:12V ADJ

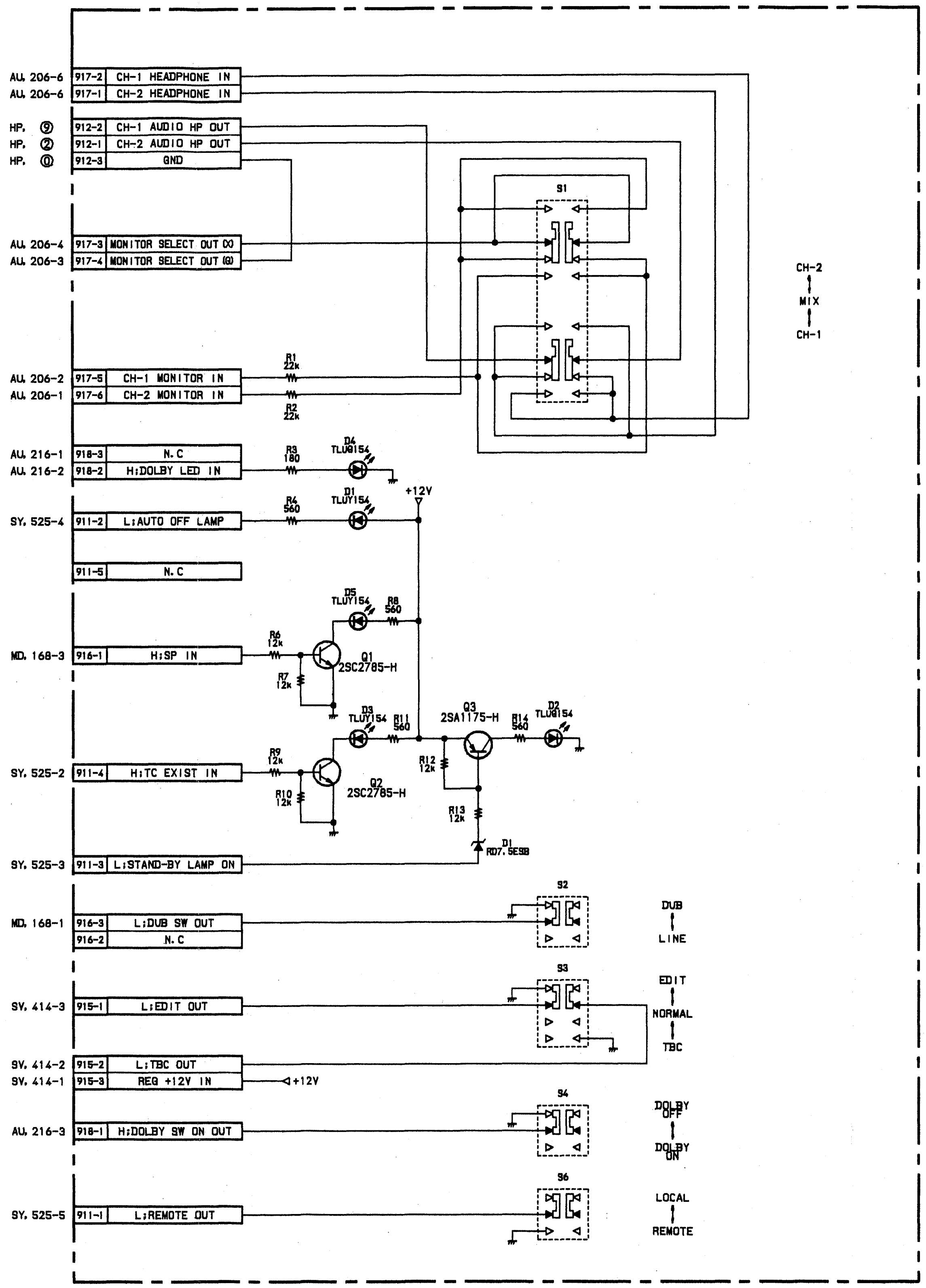
注意 1：⚠ 印の部品は安全性を維持するために重要な部品です．
従って交換する時は必ず指定の 部品を使って下さい．

NOTE:
The ⚠ -marked components are critical to safety. Replace only with same components as specified.


SYS 12V OUT
2-4
DC. BRW
REG 12V OUT
2-1
DC. BFD
REG 7V OUT
2-2
DC. BLU
SYS GND
2-5
DC. GRY
REG GND
2-3
DC. BLK
PW-68
D301
10E-2
Q301
2SA733
R302
75
C304
22
35V
R312
22k
R314
4700
Q301
R305
0.1
R313
5600
R311
4700
PW-67

UR-01

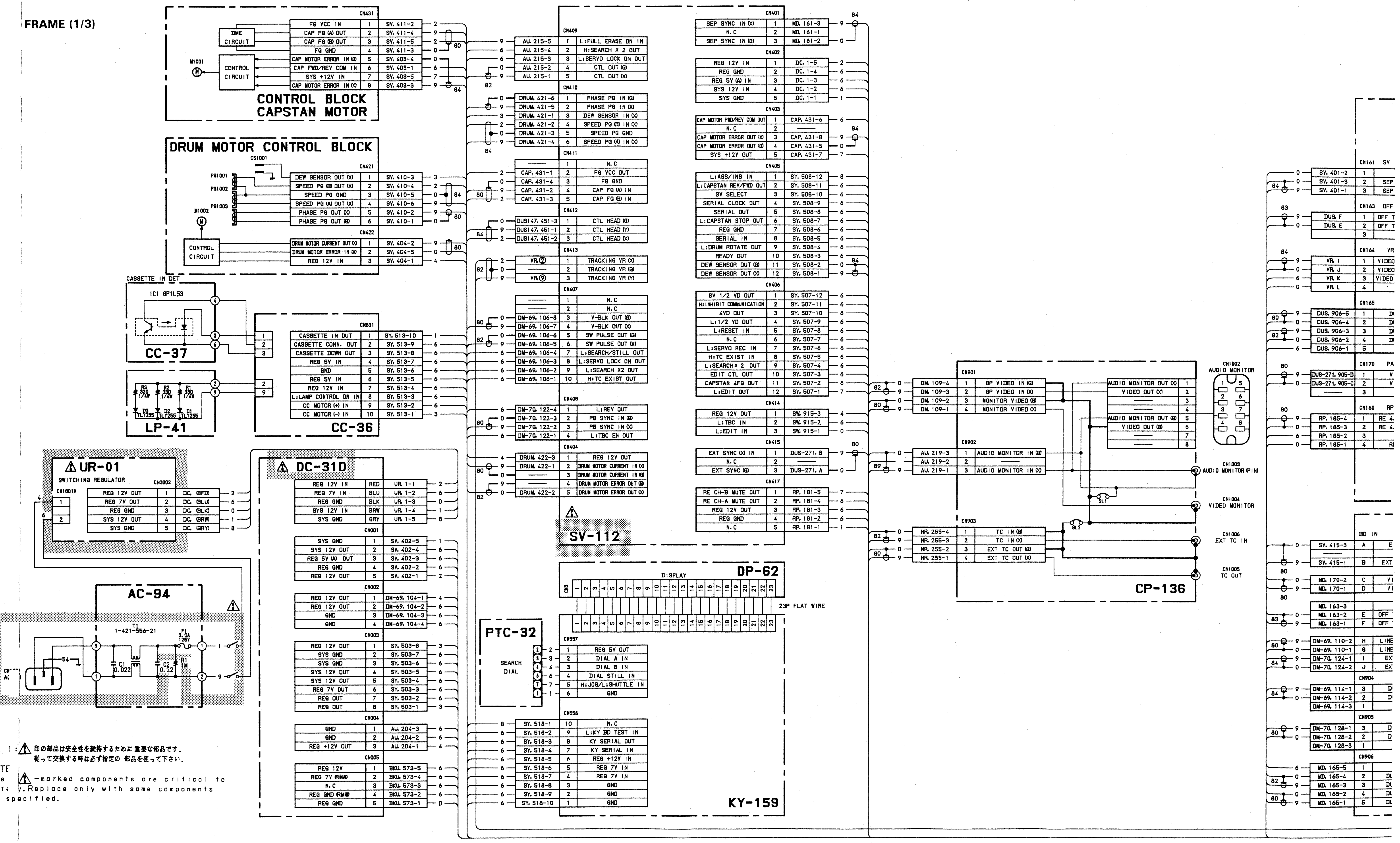
1-413-069-14
VO-9850
VO-9850P
VO-9800
VO-9800P


AU. 206-6
917-2
CH-1 HEADPHONE IN
AU. 206-6
917-1
CH-2 HEADPHONE IN
HP. ⑨
912-2
CH-1 AUDIO HP OUT
HP. ②
912-1
CH-2 AUDIO HP OUT
HP. ⓪
912-3
GND
AU. 206-4
917-3
MONITOR SELECT OUT
AU. 206-3
917-4
MONITOR SELECT OUT
S1
CH-2
MIX
CH-1
AU. 206-2
917-5
CH-1 MONITOR IN
AU. 206-1
917-6
CH-2 MONITOR IN
R1 22k
R2 22k
AU. 216-1
918-3
N.C
AU. 216-2
918-2
H:DOLBY LED IN
R3 180
D4 TLUG154
SY. 525-4
911-2
L:AUTO OFF LAMP
R4 560
D1 TLUY154
+12V
911-5
N.C
D5 TLUY154
R8 560
MD. 168-3
916-1
H:SP IN
R6 12k
R7 12k
Q1 2SC2785-H
D3 TLUY154
R11 560
Q3 2SA1175-H
R14 560
D2 TLUG154
SY. 525-2
911-4
H:TC EXIST IN
R9 12k
R10 12k
Q2 2SC2785-H
R12 12k
R13 12k
D1 RD7.5ESB
SY. 525-3
911-3
L:STAND-BY LAMP ON
S2
MD. 168-1
916-3
L:DUB SW OUT
916-2
N.C
DUB
LINE
S3
SV. 414-3
915-1
L:EDIT OUT
EDIT
NORMAL
TBC
SV. 414-2
915-2
L:TBC OUT
SV. 414-1
915-3
REG +12V IN
+12V
S4
AU. 216-3
918-1
H:DOLBY SW ON OUT
DOLBY OFF
DOLBY ON
S6
SY. 525-5
911-1
L:REMOTE OUT
LOCAL
REMOTE

SW-315

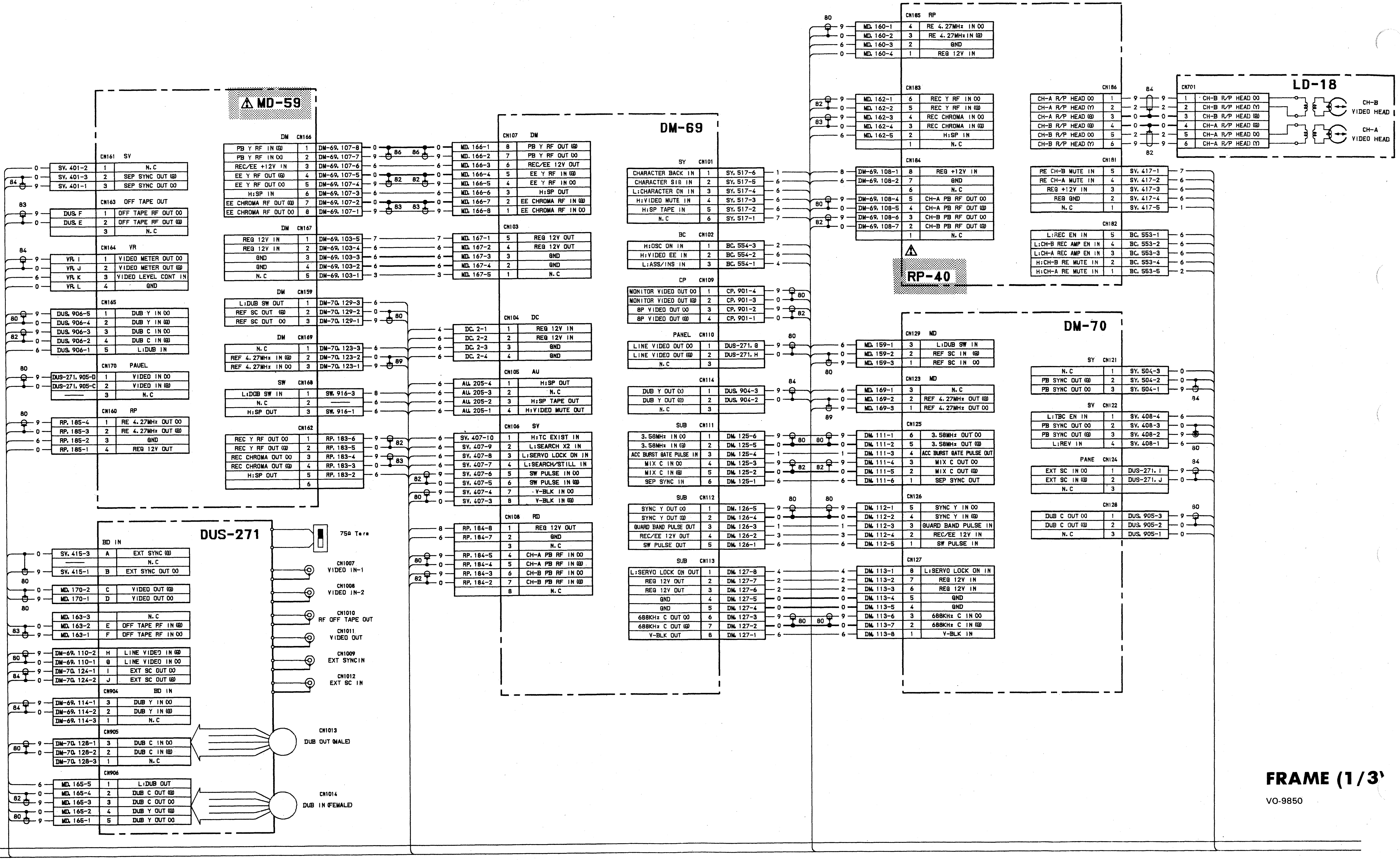
1-629-482-11
VO-9850

FRAME (1/3)


CONTROL BLOCK
CAPSTAN MOTOR
DRUM MOTOR CONTROL BLOCK
CC-37
LP-41
CC-36
UR-01
SWITCHING REGULATOR
DC-31D
AC-94
SV-112
DP-62
KY-159
PTC-32
SEARCH DIAL
CP-136
23P FLAT WIRE
AUDIO MONITOR
AUDIO MONITOR (PIN)
VIDEO MONITOR
EXT TC IN
TC OUT

1 : ⚠ 印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の 部品を使って下さい。

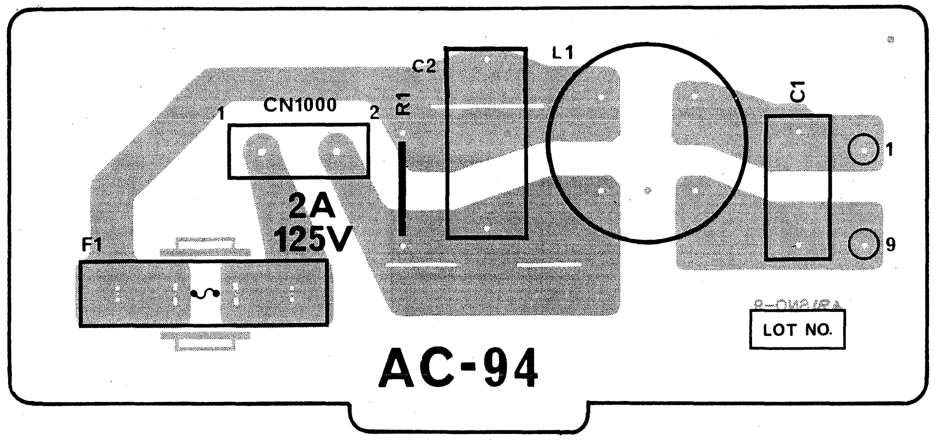
TE
⚠ -marked components are critical to
y. Replace only with same components
specified.


MD-59
DM-69
DM-70
RP-40
LD-18
DUS-271
CN161 SV
CN163 OFF TAPE OUT
CN164 VR
CN165
CN170 PAUEL
CN160 RP
CN166
CN167
CN159
CN169
CN168
CN162
CN107 DM
CN103
CN104 DC
CN105 AU
CN106 SV
CN108 RD
CN101 SY
CN102 BC
CN109 CP
CN110 PANEL
CN114
CN111 SUB
CN112 SUB
CN113 SUB
CN165 RP
CN183
CN184
CN186
CN181
CN182
CN701
CN129 MD
CN123 MD
CN125
CN126
CN127
CN121 SY
CN122 SV
CN124 PANE
CN128
BD IN
CN904 BD IN
CN905
CN906
CN1007 VIDEO IN-1
CN1008 VIDEO IN-2
CN1010 RF OFF TAPE OUT
CN1011 VIDEO OUT
CN1009 EXT SYNC IN
CN1012 EXT SC IN
CN1013 DUB OUT (MALE)
CN1014 DUB IN (FEMALE)
75Ω Term
CH-B VIDEO HEAD
CH-A VIDEO HEAD
MONITOR
CN1003 MONITOR (PIN)
CN1005 C OUT

FRAME (1/3

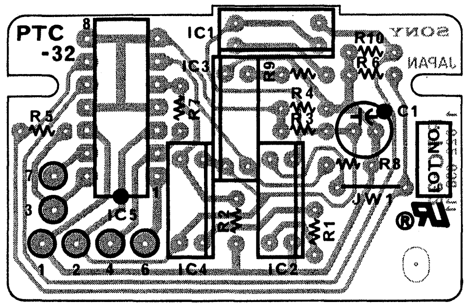
VO-9850

AC-94: LINE FILTER
PTC-32: SEARCH DIAL


C2
L1
1
CN1000
2
R1
C1
1
2A
125V
9
F1
LOT NO.
AC-94

AC-94

—COMPONENT SIDE—
1-629-483-11
VO-9850
VO-9800

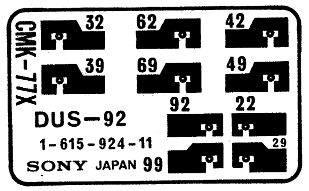

PTC
-32
8
IC1
SONY
R10
R6
JAPAN
IC3
R9
R7
R4
R5
R3
C1
LOT NO.
R8
7
1
JW1
3
IC5
R2
R1
1
2
4
6
IC4
IC2

PTC-32

—COMPONENT SIDE—
1-622-638-11
VO-9850
VO-9850P
VO-9800
VO-9800P

DUS-92: R/P HEAD, AUDIO ERASE HEAD
DUS-147: JUNCTION BOARD FOR AUDIO HEAD
EC-32: FR CTL HEAD
HN-130: ERASE HEAD
MT-53: METER LAMP

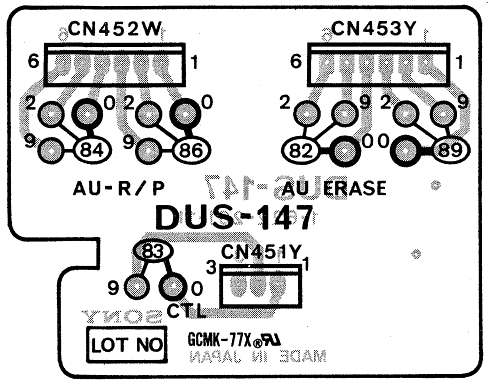
HP-42: HEADPHONES
MC-28: MIC IN
VR-80: REC LEVEL, LIMITER ON/OFF



CMK-77X
32
62
42
39
69
49
92
22
DUS-92
1-615-924-11
SONY JAPAN 99
29

DUS-92

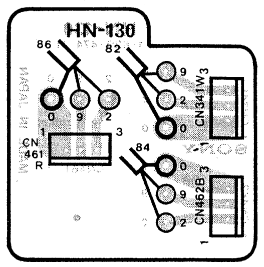
—COMPONENT SIDE—
1-615-924-11
VO-9850
VO-9850P
VO-9800
VO-9800P



CN452W
CN453Y
6
1
84
86
82
89
AU-R/P
AU ERASE
DUS-147
83
CN451Y
CTL
LOT NO
GCMK-77X
MADE IN JAPAN

DUS-147

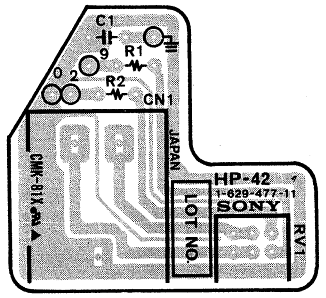
—COMPONENT SIDE—
1-622-261-11
VO-9850
VO-9850P
VO-9800
VO-9800P



HN-130
86
82
84
CN341W
CN462B
CN461

HN-130

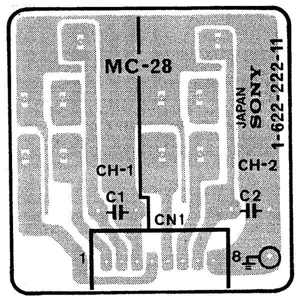
—COMPONENT SIDE—
1-629-474-11
VO-9850
VO-9850P
VO-9800
VO-9800P



C1
R1
R2
CN1
HP-42
1-629-477-11
SONY
JAPAN
LOT NO.
RV1
CMK-81X

HP-42

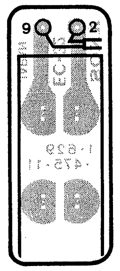
—COMPONENT SIDE—
1-629-477-11
VO-9850
VO-9850P
VO-9800
VO-9800P



MC-28
JAPAN
SONY
1-622-222-11
CH-1
CH-2
C1
C2
CN1
1
8

MC-28

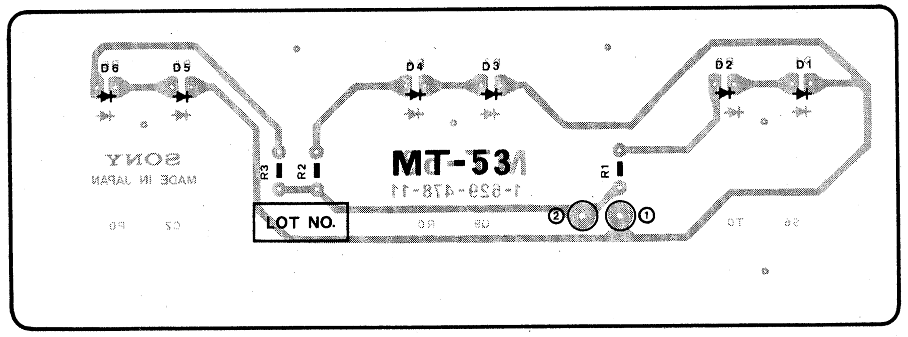
—COMPONENT SIDE—
1-622-222-11
VO-9850
VO-9850P
VO-9800
VO-9800P



9
2
EC
1-629
-475-11

EC-32

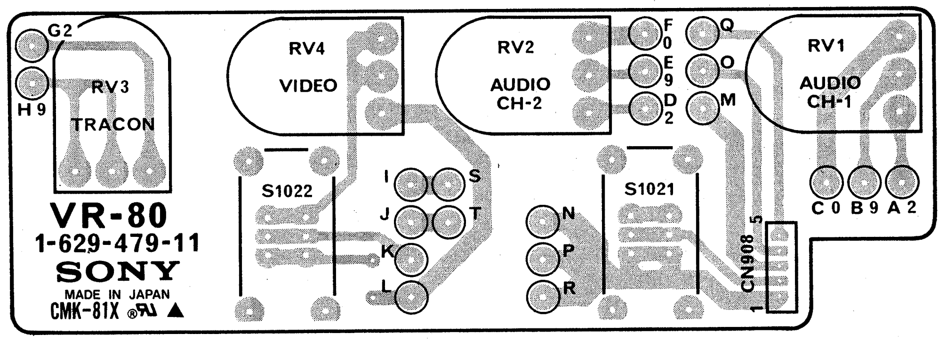
—COMPONENT SIDE—
1-629-475-11
VO-9850
VO-9850P
VO-9800
VO-9800P



D6
D5
D4
D3
D2
D1
SONY
MADE IN JAPAN
R3
R2
R1
MT-53
1-629-478-11
LOT NO.
②
①

MT-53

—COMPONENT SIDE—
1-629-478-11
VO-9850
VO-9850P
VO-9800
VO-9800P

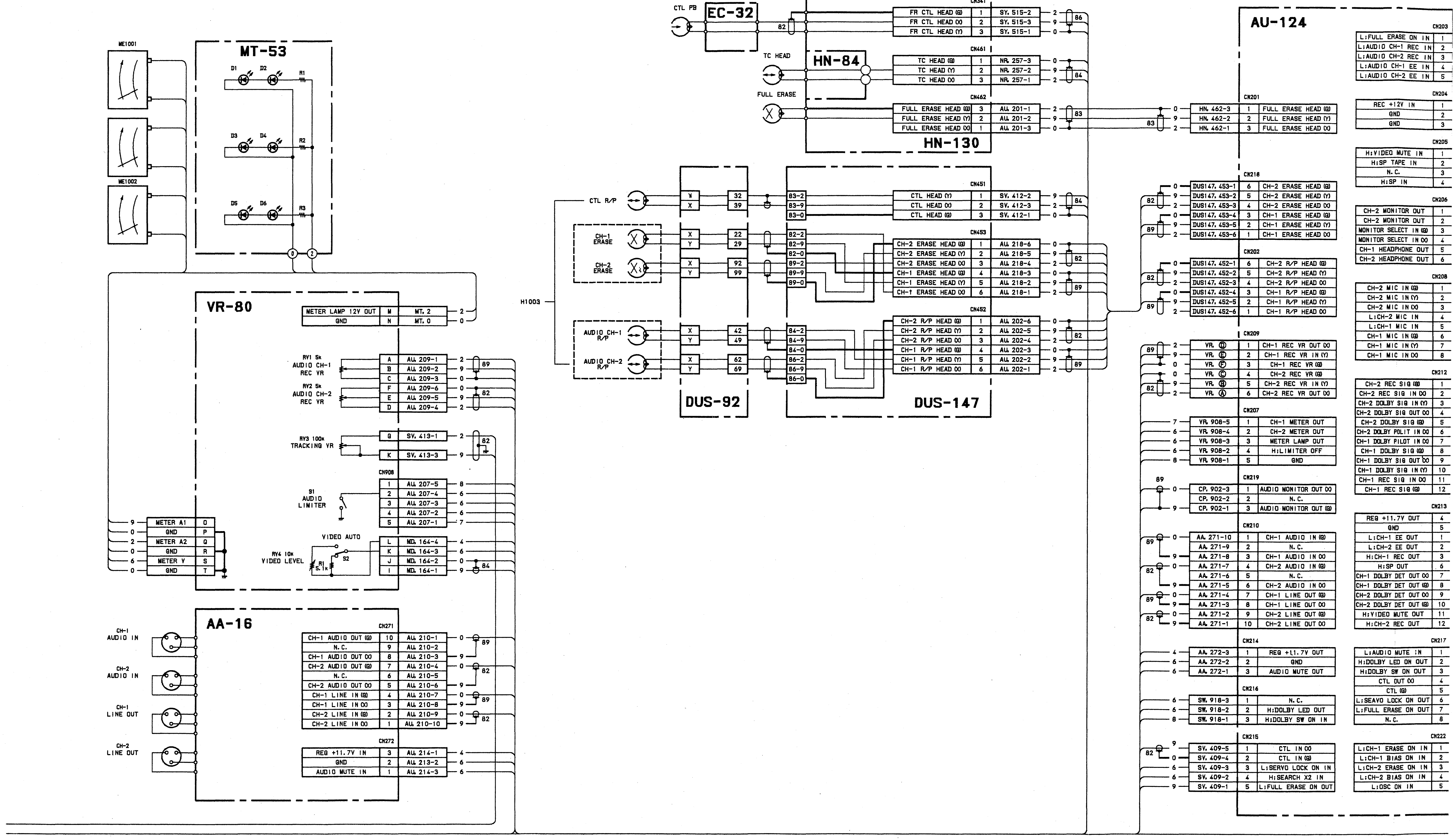


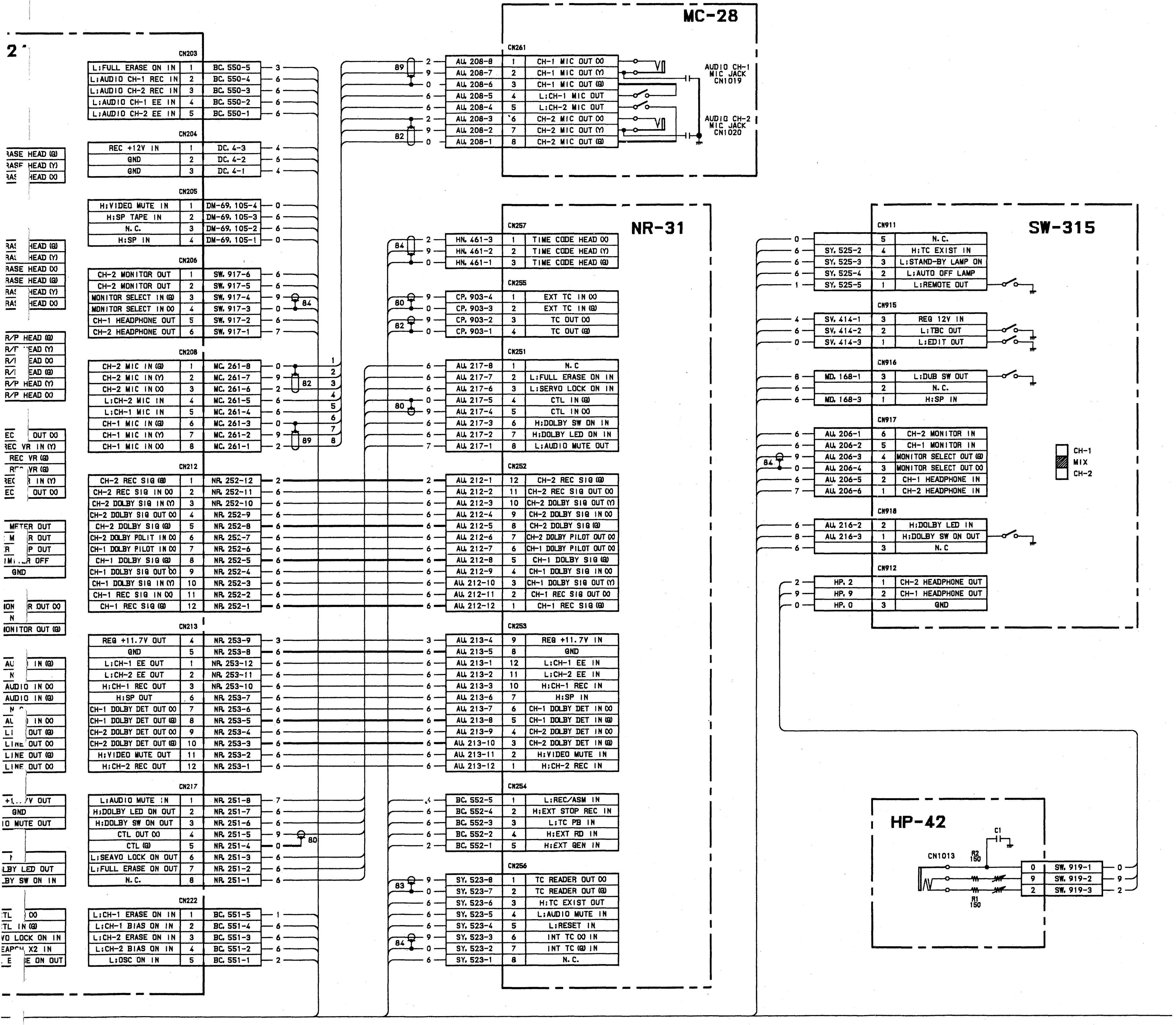
G2
H9
RV3
TRACON
RV4
VIDEO
RV2
AUDIO
CH-2
RV1
AUDIO
CH-1
F
0
E
9
D
2
Q
O
M
S1022
S1021
I
J
K
L
S
T
N
P
R
C 0 B 9 A 2
CN908
VR-80
1-629-479-11
SONY
MADE IN JAPAN
CMK-81X

VR-80

—COMPONENT SIDE—
1-629-479-11
VO-9850
VO-9850P
VO-9800
VO-9800P

FRAME (2/3)

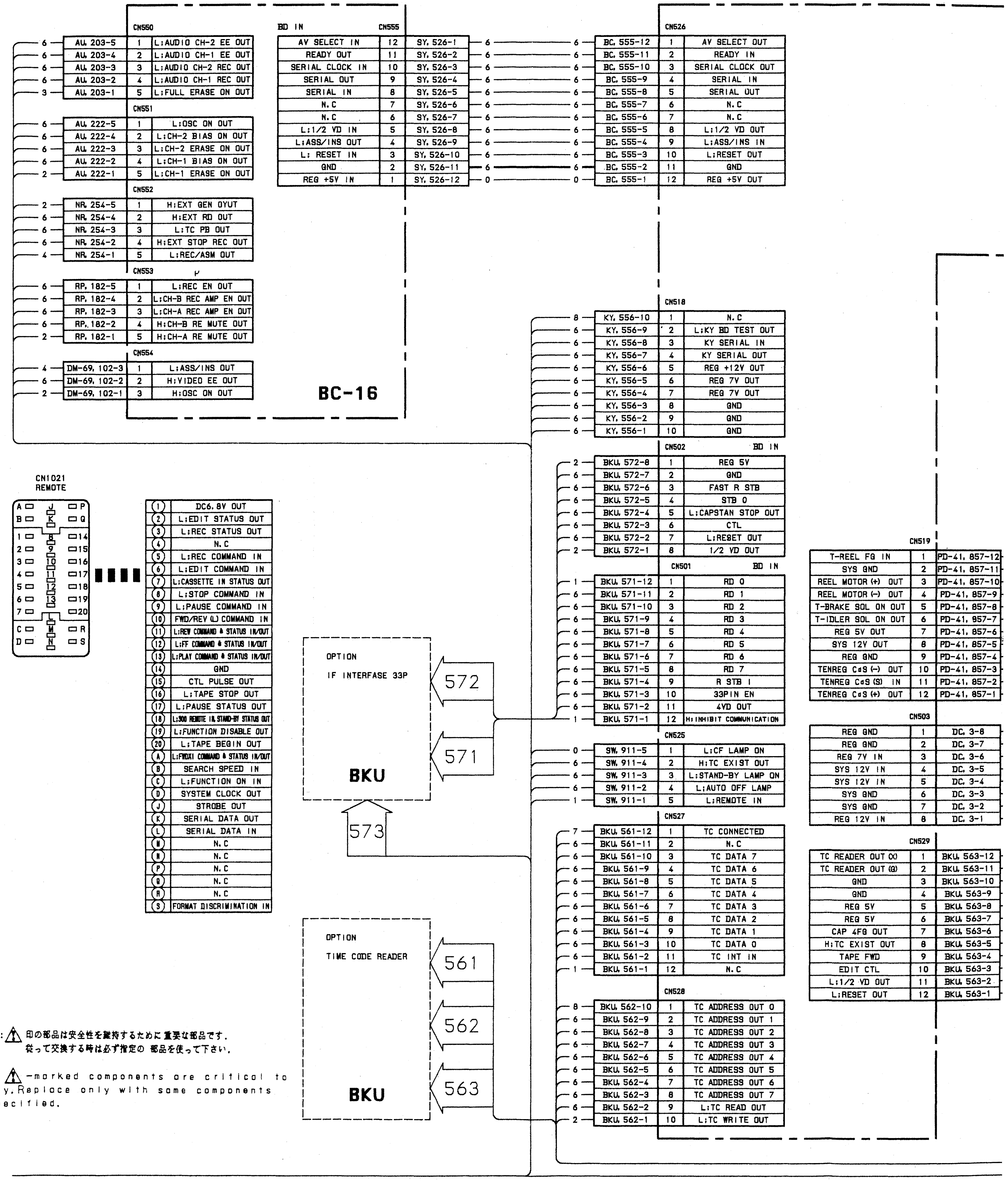

ME1001
ME1002
MT-53
D1
D2
D3
D4
D5
D6
R1
R2
R3
VR-80
METER LAMP 12V OUT
GND
RV1 5k AUDIO CH-1 REC VR
RV2 5k AUDIO CH-2 REC VR
RV3 100k TRACKING VR
S1 AUDIO LIMITER
VIDEO AUTO
RV4 10k VIDEO LEVEL
S2
CN908
METER A1
METER A2
METER Y
AA-16
CH-1 AUDIO IN
CH-2 AUDIO IN
CH-1 LINE OUT
CH-2 LINE OUT
CN271
CN272
CH-1 AUDIO OUT (G)
N.C.
CH-1 AUDIO OUT (X)
CH-2 AUDIO OUT (G)
CH-2 AUDIO OUT (X)
CH-1 LINE IN (G)
CH-1 LINE IN (X)
CH-2 LINE IN (G)
CH-2 LINE IN (X)
REG +11.7V IN
AUDIO MUTE IN
H1003
CTL PB
EC-32
TC HEAD
HN-84
FULL ERASE
HN-130
CN341
CN461
CN462
FR CTL HEAD (G)
FR CTL HEAD (X)
FR CTL HEAD (Y)
TC HEAD (G)
TC HEAD (Y)
TC HEAD (X)
FULL ERASE HEAD (G)
FULL ERASE HEAD (Y)
FULL ERASE HEAD (X)
CTL R/P
CH-1 ERASE
CH-2 ERASE
AUDIO CH-1 R/P
AUDIO CH-2 R/P
DUS-92
DUS-147
CN451
CN453
CN452
CTL HEAD (Y)
CTL HEAD (X)
CTL HEAD (G)
CH-2 ERASE HEAD (G)
CH-2 ERASE HEAD (Y)
CH-2 ERASE HEAD (X)
CH-1 ERASE HEAD (G)
CH-1 ERASE HEAD (Y)
CH-1 ERASE HEAD (X)
CH-2 R/P HEAD (G)
CH-2 R/P HEAD (Y)
CH-2 R/P HEAD (X)
CH-1 R/P HEAD (G)
CH-1 R/P HEAD (Y)
CH-1 R/P HEAD (X)
AU-124
CN201
CN218
CN202
CN209
CN207
CN219
CN210
CN214
CN216
CN215
CN203
CN204
CN205
CN206
CN208
CN212
CN213
CN217
CN222


MC-28
CN261
AU. 208-8 1 CH-1 MIC OUT (X)
AU. 208-7 2 CH-1 MIC OUT (Y)
AU. 208-6 3 CH-1 MIC OUT (G)
AU. 208-5 4 L:CH-1 MIC OUT
AU. 208-4 5 L:CH-2 MIC OUT
AU. 208-3 6 CH-2 MIC OUT (X)
AU. 208-2 7 CH-2 MIC OUT (Y)
AU. 208-1 8 CH-2 MIC OUT (G)
AUDIO CH-1 MIC JACK CN1019
AUDIO CH-2 MIC JACK CN1020
NR-31
CN257
HN. 461-3 1 TIME CODE HEAD (X)
HN. 461-2 2 TIME CODE HEAD (Y)
HN. 461-1 3 TIME CODE HEAD (G)
CN255
CP. 903-4 1 EXT TC IN (X)
CP. 903-3 2 EXT TC IN (G)
CP. 903-2 3 TC OUT (X)
CP. 903-1 4 TC OUT (G)
CN251
AU. 217-8 1 N.C
AU. 217-7 2 L:FULL ERASE ON IN
AU. 217-6 3 L:SERVO LOCK ON IN
AU. 217-5 4 CTL IN (G)
AU. 217-4 5 CTL IN (X)
AU. 217-3 6 H:DOLBY SW ON IN
AU. 217-2 7 H:DOLBY LED ON IN
AU. 217-1 8 L:AUDIO MUTE OUT
CN252
AU. 212-1 12 CH-2 REC SIG (G)
AU. 212-2 11 CH-2 REC SIG OUT (X)
AU. 212-3 10 CH-2 DOLBY SIG OUT (Y)
AU. 212-4 9 CH-2 DOLBY SIG IN (X)
AU. 212-5 8 CH-2 DOLBY SIG (G)
AU. 212-6 7 CH-2 DOLBY PILOT OUT (X)
AU. 212-7 6 CH-1 DOLBY PILOT OUT (X)
AU. 212-8 5 CH-1 DOLBY SIG (G)
AU. 212-9 4 CH-1 DOLBY SIG IN (X)
AU. 212-10 3 CH-1 DOLBY SIG OUT (Y)
AU. 212-11 2 CH-1 REC SIG OUT (X)
AU. 212-12 1 CH-1 REC SIG (G)
CN253
AU. 213-4 9 REG +11.7V IN
AU. 213-5 8 GND
AU. 213-1 12 L:CH-1 EE IN
AU. 213-2 11 L:CH-2 EE IN
AU. 213-3 10 H:CH-1 REC IN
AU. 213-6 7 H:SP IN
AU. 213-7 6 CH-1 DOLBY DET IN (X)
AU. 213-8 5 CH-1 DOLBY DET IN (G)
AU. 213-9 4 CH-2 DOLBY DET IN (X)
AU. 213-10 3 CH-2 DOLBY DET IN (G)
AU. 213-11 2 H:VIDEO MUTE IN
AU. 213-12 1 H:CH-2 REC IN
CN254
BC. 552-5 1 L:REC/ASM IN
BC. 552-4 2 H:EXT STOP REC IN
BC. 552-3 3 L:TC PB IN
BC. 552-2 4 H:EXT RD IN
BC. 552-1 5 H:EXT GEN IN
CN256
SY. 523-8 1 TC READER OUT (X)
SY. 523-7 2 TC READER OUT (G)
SY. 523-6 3 H:TC EXIST OUT
SY. 523-5 4 L:AUDIO MUTE IN
SY. 523-4 5 L:RESET IN
SY. 523-3 6 INT TC (X) IN
SY. 523-2 7 INT TC (G) IN
SY. 523-1 8 N.C.
SW-315
CN911
5 N.C.
SY. 525-2 4 H:TC EXIST IN
SY. 525-3 3 L:STAND-BY LAMP ON
SY. 525-4 2 L:AUTO OFF LAMP
SY. 525-5 1 L:REMOTE OUT
CN915
SY. 414-1 3 REG 12V IN
SY. 414-2 2 L:TBC OUT
SY. 414-3 1 L:EDIT OUT
CN916
MD. 168-1 3 L:DUB SW OUT
2 N.C.
MD. 168-3 1 H:SP IN
CN917
AU. 206-1 6 CH-2 MONITOR IN
AU. 206-2 5 CH-1 MONITOR IN
AU. 206-3 4 MONITOR SELECT OUT (G)
AU. 206-4 3 MONITOR SELECT OUT (X)
AU. 206-5 2 CH-1 HEADPHONE IN
AU. 206-6 1 CH-2 HEADPHONE IN
CH-1
MIX
CH-2
CN918
AU. 216-2 2 H:DOLBY LED IN
AU. 216-3 1 H:DOLBY SW ON OUT
3 N.C
CN912
HP. 2 1 CH-2 HEADPHONE OUT
HP. 9 2 CH-1 HEADPHONE OUT
HP. 0 3 GND
HP-42
CN1013
C1
R2 150
R1 150
0 SW. 919-1
9 SW. 919-2
2 SW. 919-3
CN203
L:FULL ERASE ON IN 1 BC. 550-5
L:AUDIO CH-1 REC IN 2 BC. 550-4
L:AUDIO CH-2 REC IN 3 BC. 550-3
L:AUDIO CH-1 EE IN 4 BC. 550-2
L:AUDIO CH-2 EE IN 5 BC. 550-1
CN204
REC +12V IN 1 DC. 4-3
GND 2 DC. 4-2
GND 3 DC. 4-1
CN205
H:VIDEO MUTE IN 1 DM-69. 105-4
H:SP TAPE IN 2 DM-69. 105-3
N.C. 3 DM-69. 105-2
H:SP IN 4 DM-69. 105-1
CN206
CH-2 MONITOR OUT 1 SW. 917-6
CH-2 MONITOR OUT 2 SW. 917-5
MONITOR SELECT IN (G) 3 SW. 917-4
MONITOR SELECT IN (X) 4 SW. 917-3
CH-1 HEADPHONE OUT 5 SW. 917-2
CH-2 HEADPHONE OUT 6 SW. 917-1
CN208
CH-2 MIC IN (G) 1 MC. 261-8
CH-2 MIC IN (Y) 2 MC. 261-7
CH-2 MIC IN (X) 3 MC. 261-6
L:CH-2 MIC IN 4 MC. 261-5
L:CH-1 MIC IN 5 MC. 261-4
CH-1 MIC IN (G) 6 MC. 261-3
CH-1 MIC IN (Y) 7 MC. 261-2
CH-1 MIC IN (X) 8 MC. 261-1
CN212
CH-2 REC SIG (G) 1 NR. 252-12
CH-2 REC SIG IN (X) 2 NR. 252-11
CH-2 DOLBY SIG IN (Y) 3 NR. 252-10
CH-2 DOLBY SIG OUT (X) 4 NR. 252-9
CH-2 DOLBY SIG (G) 5 NR. 252-8
CH-2 DOLBY POLIT IN (X) 6 NR. 252-7
CH-1 DOLBY PILOT IN (X) 7 NR. 252-6
CH-1 DOLBY SIG (G) 8 NR. 252-5
CH-1 DOLBY SIG OUT (X) 9 NR. 252-4
CH-1 DOLBY SIG IN (Y) 10 NR. 252-3
CH-1 REC SIG IN (X) 11 NR. 252-2
CH-1 REC SIG (G) 12 NR. 252-1
CN213
REG +11.7V OUT 4 NR. 253-9
GND 5 NR. 253-8
L:CH-1 EE OUT 1 NR. 253-12
L:CH-2 EE OUT 2 NR. 253-11
H:CH-1 REC OUT 3 NR. 253-10
H:SP OUT 6 NR. 253-7
CH-1 DOLBY DET OUT (X) 7 NR. 253-6
CH-1 DOLBY DET OUT (G) 8 NR. 253-5
CH-2 DOLBY DET OUT (X) 9 NR. 253-4
CH-2 DOLBY DET OUT (G) 10 NR. 253-3
H:VIDEO MUTE OUT 11 NR. 253-2
H:CH-2 REC OUT 12 NR. 253-1
CN217
L:AUDIO MUTE IN 1 NR. 251-8
H:DOLBY LED ON OUT 2 NR. 251-7
H:DOLBY SW ON OUT 3 NR. 251-6
CTL OUT (X) 4 NR. 251-5
CTL (G) 5 NR. 251-4
L:SEAVO LOCK ON OUT 6 NR. 251-3
L:FULL ERASE ON OUT 7 NR. 251-2
N.C. 8 NR. 251-1
CN222
L:CH-1 ERASE ON IN 1 BC. 551-5
L:CH-1 BIAS ON IN 2 BC. 551-4
L:CH-2 ERASE ON IN 3 BC. 551-3
L:CH-2 BIAS ON IN 4 BC. 551-2
L:OSC ON IN 5 BC. 551-1
80
82
83
84
89

FRAME (2/3)

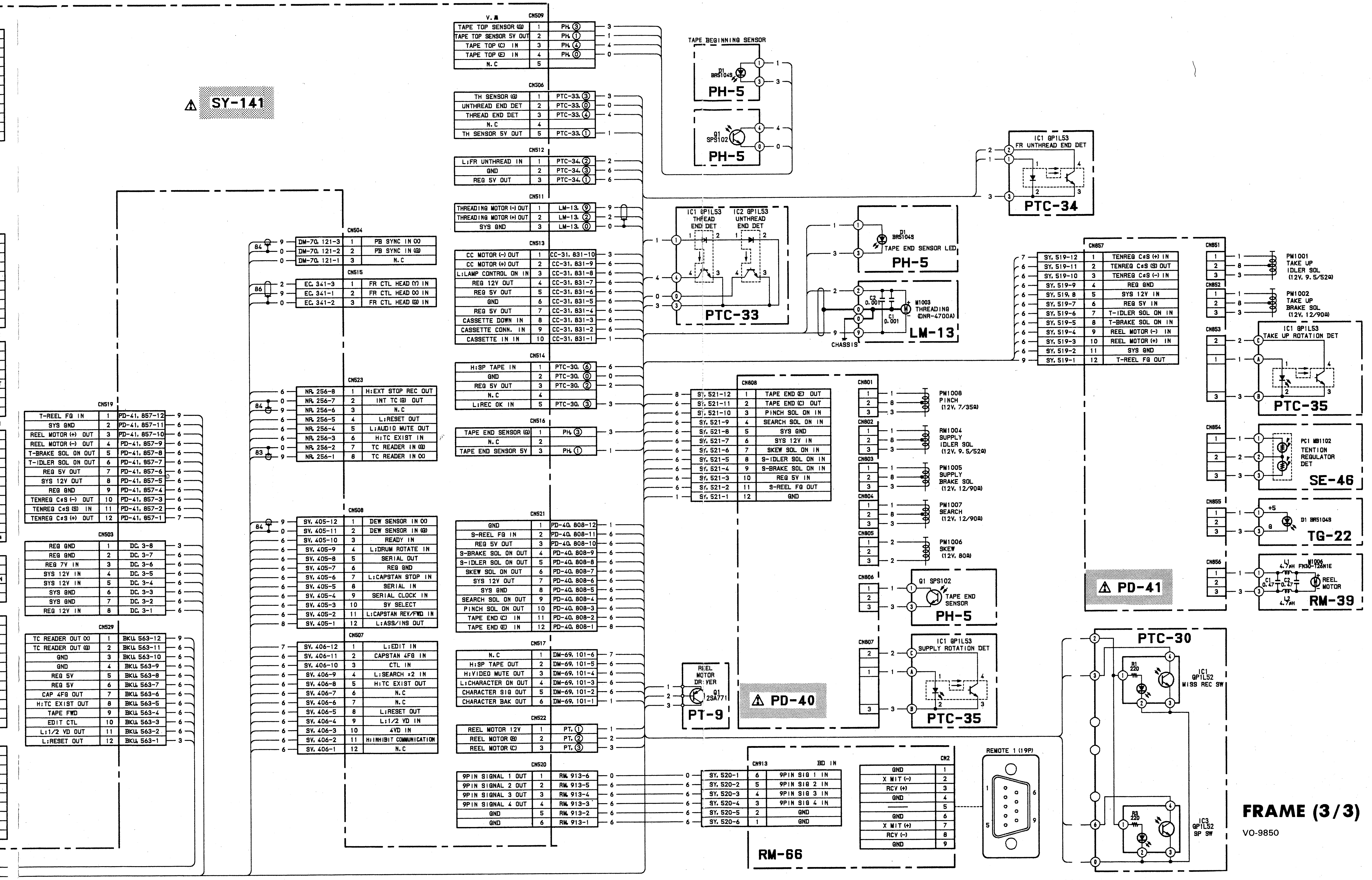
VO-9850

FRAME (3/3)


CN550
AU 203-5 1 L:AUDIO CH-2 EE OUT
AU 203-4 2 L:AUDIO CH-1 EE OUT
AU 203-3 3 L:AUDIO CH-2 REC OUT
AU 203-2 4 L:AUDIO CH-1 REC OUT
AU 203-1 5 L:FULL ERASE ON OUT
CN551
AU 222-5 1 L:OSC ON OUT
AU 222-4 2 L:CH-2 BIAS ON OUT
AU 222-3 3 L:CH-2 ERASE ON OUT
AU 222-2 4 L:CH-1 BIAS ON OUT
AU 222-1 5 L:CH-1 ERASE ON OUT
CN552
NR 254-5 1 H:EXT GEN OYUT
NR 254-4 2 H:EXT RD OUT
NR 254-3 3 L:TC PB OUT
NR 254-2 4 H:EXT STOP REC OUT
NR 254-1 5 L:REC/ASM OUT
CN553
RP 182-5 1 L:REC EN OUT
RP 182-4 2 L:CH-B REC AMP EN OUT
RP 182-3 3 L:CH-A REC AMP EN OUT
RP 182-2 4 H:CH-B RE MUTE OUT
RP 182-1 5 H:CH-A RE MUTE OUT
CN554
DM-69, 102-3 1 L:ASS/INS OUT
DM-69, 102-2 2 H:VIDEO EE OUT
DM-69, 102-1 3 H:OSC ON OUT
BC-16
BD IN CN555
AV SELECT IN 12 SY 526-1
READY OUT 11 SY 526-2
SERIAL CLOCK IN 10 SY 526-3
SERIAL OUT 9 SY 526-4
SERIAL IN 8 SY 526-5
N.C 7 SY 526-6
N.C 6 SY 526-7
L:1/2 VD IN 5 SY 526-8
L:ASS/INS OUT 4 SY 526-9
L: RESET IN 3 SY 526-10
GND 2 SY 526-11
REG +5V IN 1 SY 526-12
CN526
BC 555-12 1 AV SELECT OUT
BC 555-11 2 READY IN
BC 555-10 3 SERIAL CLOCK OUT
BC 555-9 4 SERIAL IN
BC 555-8 5 SERIAL OUT
BC 555-7 6 N.C
BC 555-6 7 N.C
BC 555-5 8 L:1/2 VD OUT
BC 555-4 9 L:ASS/INS IN
BC 555-3 10 L:RESET OUT
BC 555-2 11 GND
BC 555-1 12 REG +5V OUT
CN518
KY 556-10 1 N.C
KY 556-9 2 L:KY BD TEST OUT
KY 556-8 3 KY SERIAL IN
KY 556-7 4 KY SERIAL OUT
KY 556-6 5 REG +12V OUT
KY 556-5 6 REG 7V OUT
KY 556-4 7 REG 7V OUT
KY 556-3 8 GND
KY 556-2 9 GND
KY 556-1 10 GND
CN502 BD IN
BKU 572-8 1 REG 5V
BKU 572-7 2 GND
BKU 572-6 3 FAST R STB
BKU 572-5 4 STB 0
BKU 572-4 5 L:CAPSTAN STOP OUT
BKU 572-3 6 CTL
BKU 572-2 7 L:RESET OUT
BKU 572-1 8 1/2 VD OUT
CN501 BD IN
BKU 571-12 1 RD 0
BKU 571-11 2 RD 1
BKU 571-10 3 RD 2
BKU 571-9 4 RD 3
BKU 571-8 5 RD 4
BKU 571-7 6 RD 5
BKU 571-6 7 RD 6
BKU 571-5 8 RD 7
BKU 571-4 9 R STB 1
BKU 571-3 10 33PIN EN
BKU 571-2 11 4VD OUT
BKU 571-1 12 H:INHIBIT COMMUNICATION
CN525
SW 911-5 1 L:CF LAMP ON
SW 911-4 2 H:TC EXIST OUT
SW 911-3 3 L:STAND-BY LAMP ON
SW 911-2 4 L:AUTO OFF LAMP
SW 911-1 5 L:REMOTE IN
CN527
BKU 561-12 1 TC CONNECTED
BKU 561-11 2 N.C
BKU 561-10 3 TC DATA 7
BKU 561-9 4 TC DATA 6
BKU 561-8 5 TC DATA 5
BKU 561-7 6 TC DATA 4
BKU 561-6 7 TC DATA 3
BKU 561-5 8 TC DATA 2
BKU 561-4 9 TC DATA 1
BKU 561-3 10 TC DATA 0
BKU 561-2 11 TC INT IN
BKU 561-1 12 N.C
CN528
BKU 562-10 1 TC ADDRESS OUT 0
BKU 562-9 2 TC ADDRESS OUT 1
BKU 562-8 3 TC ADDRESS OUT 2
BKU 562-7 4 TC ADDRESS OUT 3
BKU 562-6 5 TC ADDRESS OUT 4
BKU 562-5 6 TC ADDRESS OUT 5
BKU 562-4 7 TC ADDRESS OUT 6
BKU 562-3 8 TC ADDRESS OUT 7
BKU 562-2 9 L:TC READ OUT
BKU 562-1 10 L:TC WRITE OUT
CN519
T-REEL FG IN 1 PD-41, 857-12
SYS GND 2 PD-41, 857-11
REEL MOTOR (+) OUT 3 PD-41, 857-10
REEL MOTOR (−) OUT 4 PD-41, 857-9
T-BRAKE SOL ON OUT 5 PD-41, 857-8
T-IDLER SOL ON OUT 6 PD-41, 957-7
REG 5V OUT 7 PD-41, 857-6
SYS 12V OUT 8 PD-41, 857-5
REG GND 9 PD-41, 857-4
TENREG C⊕S (−) OUT 10 PD-41, 857-3
TENREG C⊕S (S) IN 11 PD-41, 857-2
TENREG C⊕S (+) OUT 12 PD-41, 857-1
CN503
REG GND 1 DC 3-8
REG GND 2 DC 3-7
REG 7V IN 3 DC 3-6
SYS 12V IN 4 DC 3-5
SYS 12V IN 5 DC 3-4
SYS GND 6 DC 3-3
SYS GND 7 DC 3-2
REG 12V IN 8 DC 3-1
CN529
TC READER OUT (X) 1 BKU 563-12
TC READER OUT (G) 2 BKU 563-11
GND 3 BKU 563-10
GND 4 BKU 563-9
REG 5V 5 BKU 563-8
REG 5V 6 BKU 563-7
CAP 4FG OUT 7 BKU 563-6
H:TC EXIST OUT 8 BKU 563-5
TAPE FWD 9 BKU 563-4
EDIT CTL 10 BKU 563-3
L:1/2 VD OUT 11 BKU 563-2
L:RESET OUT 12 BKU 563-1
CN1021
REMOTE
A B 1 2 3 4 5 6 7 C D
P Q 14 15 16 17 18 19 20 R S
J K 8 9 10 11 12 13 M N
① DC6.8V OUT
② L:EDIT STATUS OUT
③ L:REC STATUS OUT
④ N.C
⑤ L:REC COMMAND IN
⑥ L:EDIT COMMAND IN
⑦ L:CASSETTE IN STATUS OUT
⑧ L:STOP COMMAND IN
⑨ L:PAUSE COMMAND IN
⑩ FWD/REV (L) COMMAND IN
⑪ L:REW COMMAND & STATUS IN/OUT
⑫ L:FF COMMAND & STATUS IN/OUT
⑬ L:PLAY COMMAND & STATUS IN/OUT
⑭ GND
⑮ CTL PULSE OUT
⑯ L:TAPE STOP OUT
⑰ L:PAUSE STATUS OUT
⑱ L:300 REMOTE IN, STAND-BY STATUS OUT
⑲ L:FUNCTION DISABLE OUT
⑳ L:TAPE BEGIN OUT
Ⓐ L:FWD×1 COMMAND & STATUS IN/OUT
Ⓑ SEARCH SPEED IN
Ⓒ L:FUNCTION ON IN
Ⓓ SYSTEM CLOCK OUT
Ⓙ STROBE OUT
Ⓚ SERIAL DATA OUT
Ⓛ SERIAL DATA IN
Ⓜ N.C
Ⓝ N.C
Ⓟ N.C
Ⓠ N.C
Ⓡ N.C
Ⓢ FORMAT DISCRIMINATION IN
OPTION
IF INTERFASE 33P
BKU
572
571
573
OPTION
TIME CODE READER
BKU
561
562
563

注意 1：⚠印の部品は安全性を維持するために重要な部品です。
従って交換する時は必ず指定の部品を使って下さい。

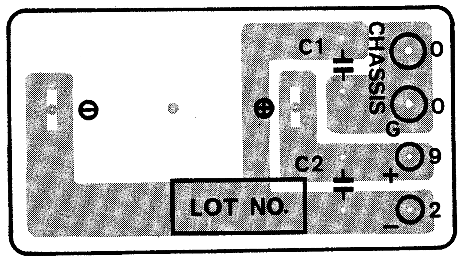
NOTE:
The ⚠-marked components are critical to safety. Replace only with same components as specified.


SY-141
PD-40
PD-41
RM-66
PTC-33
PTC-34
PTC-35
PTC-30
PH-5
LM-13
SE-46
TG-22
RM-39
PT-9
CN509
CN506
CN512
CN511
CN513
CN514
CN516
CN521
CN517
CN522
CN520
CN504
CN515
CN523
CN508
CN507
CN519
CN503
CN529
CN808
CN801
CN802
CN803
CN804
CN805
CN806
CN807
CN857
CN851
CN852
CN853
CN854
CN855
CN856
CN913
CN2
TAPE BEGINNING SENSOR
D1 BR5104S
Q1 SPS102
IC1 GP1L53 FR UNTHREAD END DET
IC1 GP1L53 THREAD END DET
IC2 GP1L53 UNTHREAD END DET
TAPE END SENSOR LED
M1003 THREADING (DNR-4700A)
CHASSIS
IC1 GP1L53 TAKE UP ROTATION DET
IC1 GP1L53 SUPPLY ROTATION DET
PM1001 TAKE UP IDLER SOL (12V, 9.5/52Ω)
PM1002 TAKE UP BRAKE SOL (12V, 12/90Ω)
PM1008 PINCH (12V, 7/35Ω)
RM1004 SUPPLY IDLER SOL (12V, 9.5/52Ω)
PM1005 SUPPLY BRAKE SOL (12V, 12/90Ω)
PM1007 SEARCH (12V, 12/90Ω)
PM1006 SKEW (12V, 80Ω)
PC1 MB1102 TENTION REGULATOR DET
M1004 FN30-126N1E REEL MOTOR
REEL MOTOR DRIVER Q1 2SA771
IC1 GP1L52 MISS REC SW
IC3 GP1L52 SP SW
REMOTE 1 (19P)
BD IN

FRAME (3/3)

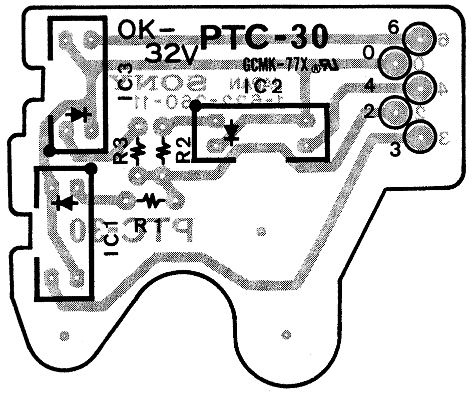
VO-9850

LM-13: THREADING MOTOR
PT-9: REEL MOTOR DRIVER
PTC-30: SP, MISS REC DETECTOR
RM-66: REMOTE CONTROL


C1
CHASSIS
C2
LOT NO.
O
O
9
2
+
−

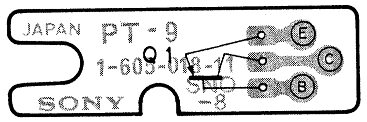
LM-13

—COMPONENT SIDE—
1-618-600-11
VO-9850
VO-9850P
VO-9800
VO-9800P


OK-
32V
PTC-30
GCMK-77X
IC3
IC2
IC1
R3
R2
R1
6
0
4
2
3

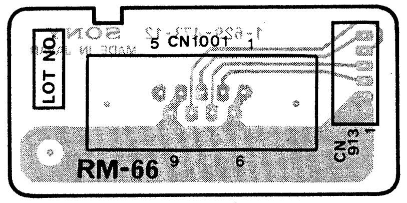
PTC-30

—COMPONENT SIDE—
1-622-260-11
VO-9850
VO-9850P
VO-9800
VO-9800P


JAPAN
PT-9
1-605-018-11
Q1
SONY
E
C
B

PT-9

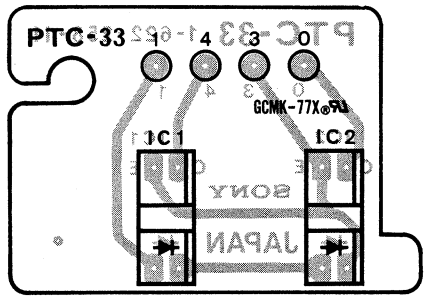
—COMPONENT SIDE—
1-605-018-11
VO-9850
VO-9850P
VO-9800
VO-9800P


LOT NO.
5 CN1001 1
RM-66
9
6
CN 913
1

RM-66

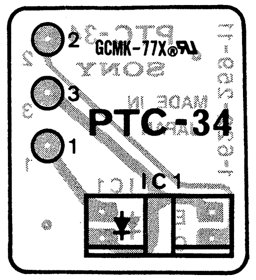
—COMPONENT SIDE—
1-629-473-12
VO-9850
VO-9850P
VO-9800
VO-9800P

PTC-33: UNTHREADEND DETECTOR
PTC-34: FR STOP DETECTOR


PTC-33
1
4
3
0
GCMK-77X
IC1
IC2

PTC-33

—COMPONENT SIDE—
1-622-258-11
VO-9850
VO-9850P
VO-9800
VO-9800P


2
GCMK-77X
3
PTC-34
1
IC1

PTC-34

—COMPONENT SIDE—
1-622-259-11
VO-9850
VO-9850P
VO-9800
VO-9800P

SECTION 16

SPARE PARTS AND FIXTURE

16-1. PARTS INFORMATION

(1) The ⚠ marked components are critical to safety.
Replace only with the same components as specified.

(2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "improved parts and/or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.

(5) (T) after a spring description is shown on the exploded views in order to indicate the number of spring turns required for the use. (Example) Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

16-2. EXPLODED VIEW

- Exploded views are composed of the following blocks.

(1) Reel Chassis (1), Supply Side
   S Reel Table
   S Tension Regulator Arm
   Search Solenoid
   S Main Brake
   Reel Motor

(2) Reel Chassis (2), Take-up Side
   T Reel Table
   FF/REW Idler
   T Main brake
   T Tension Regulator Arm
   R Brake

(3) Reel Chassis (3), Back Side
   S Idler Solenoid
   T Idler Solenoid
   FF/REW Idler Pulley
   S Brake Solenoid
   T Brake Solenoid

(4) Threading Ring Block
   Threading Ring
   Gear Box
   T Correction Guide
   Tape Beginning Sensor
   FR Detector

(5) Threading Arm
   T Drawer Arm
   S Drawer Arm
   S Drawer Roller
   Drawer Lever

(6) Drum and Capstan Blocks
   Head Drum
   Capstan Motor
   Audio/ CTL Head
   Tape Guides

(7) Erase Head Base
  - Erase Head Base
  - S Guard

(8) Pinch Lever and Pinch Solenoid Blocks
  - Pinch Lever
  - Pinch Roller Pre-set Cam
  - Pinch Solenoid

(9) Cassette-up Compartment Block

(10) Function Control
  - Function Control Board
  - Search Dial

(11) Front Panel and Key Panel Blocks

(12) Chassis Block (1), Left Side
  - Printed Circuit Boards

(13) Chassis Block (2), Top
  - Printed Circuit Boards

(14) Level Control

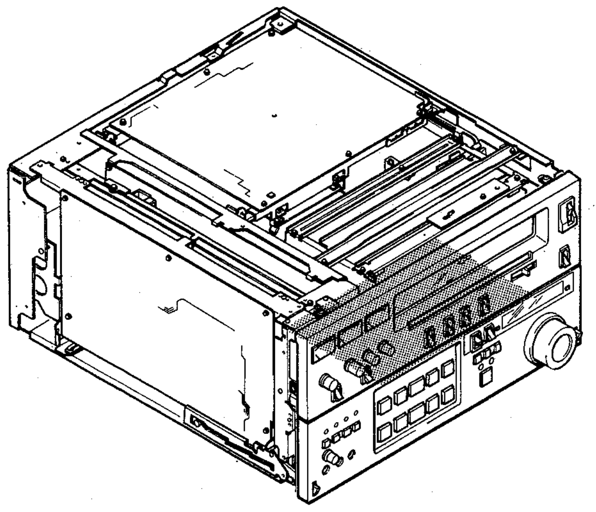
(15) Chassis Block (3), Right Side and Rear
  - Printed Circuit Boards
  - Switching Regulator

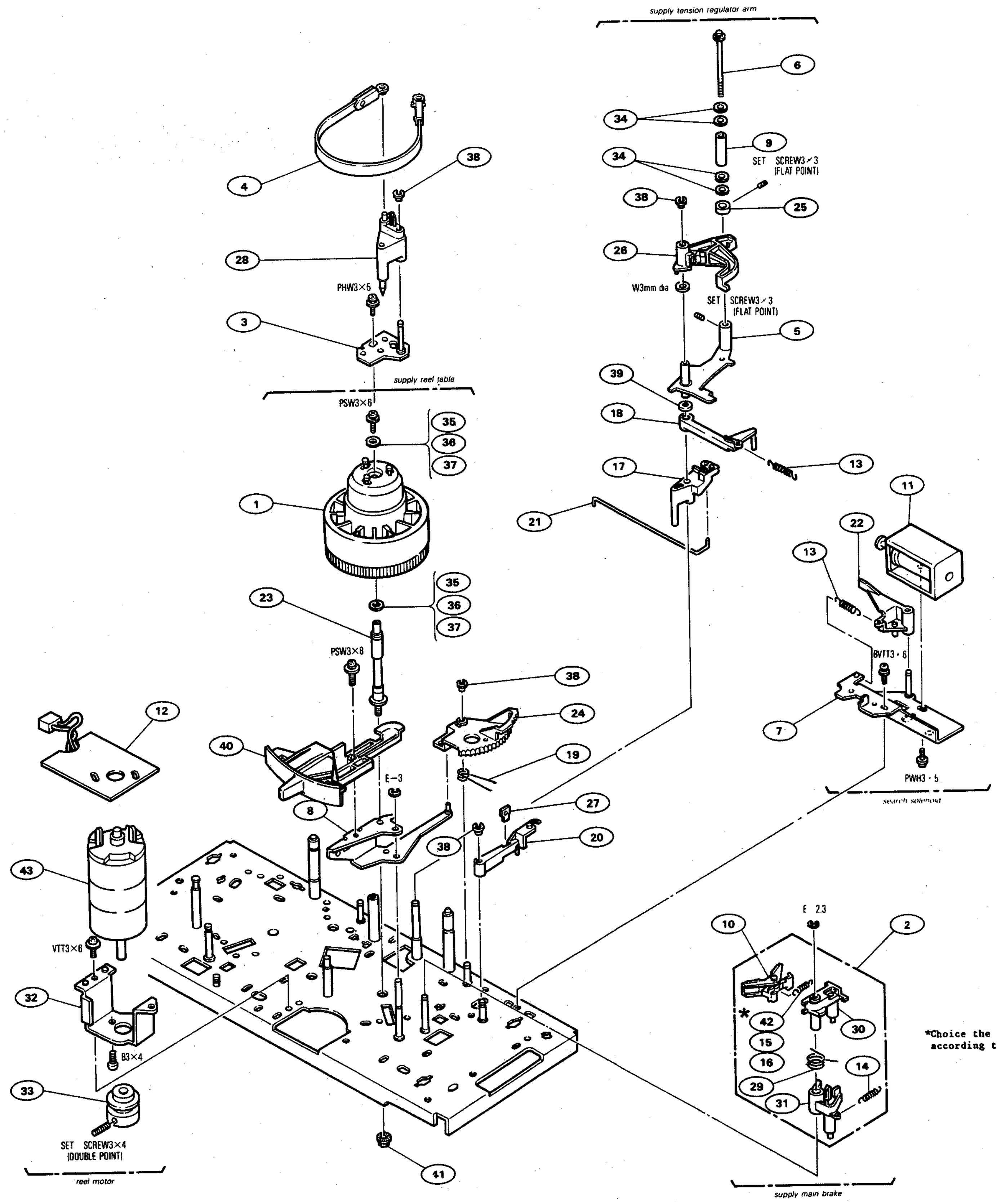
(16) Connector Panel for Audio Signal

(17) Chassis Block (3), Bottom
  - Printed Circuit Boards

(18) Ornamental Panel Block
  - U Case
  - Bottom Plate

REEL CHASSIS (1), SUPPLY SIDE

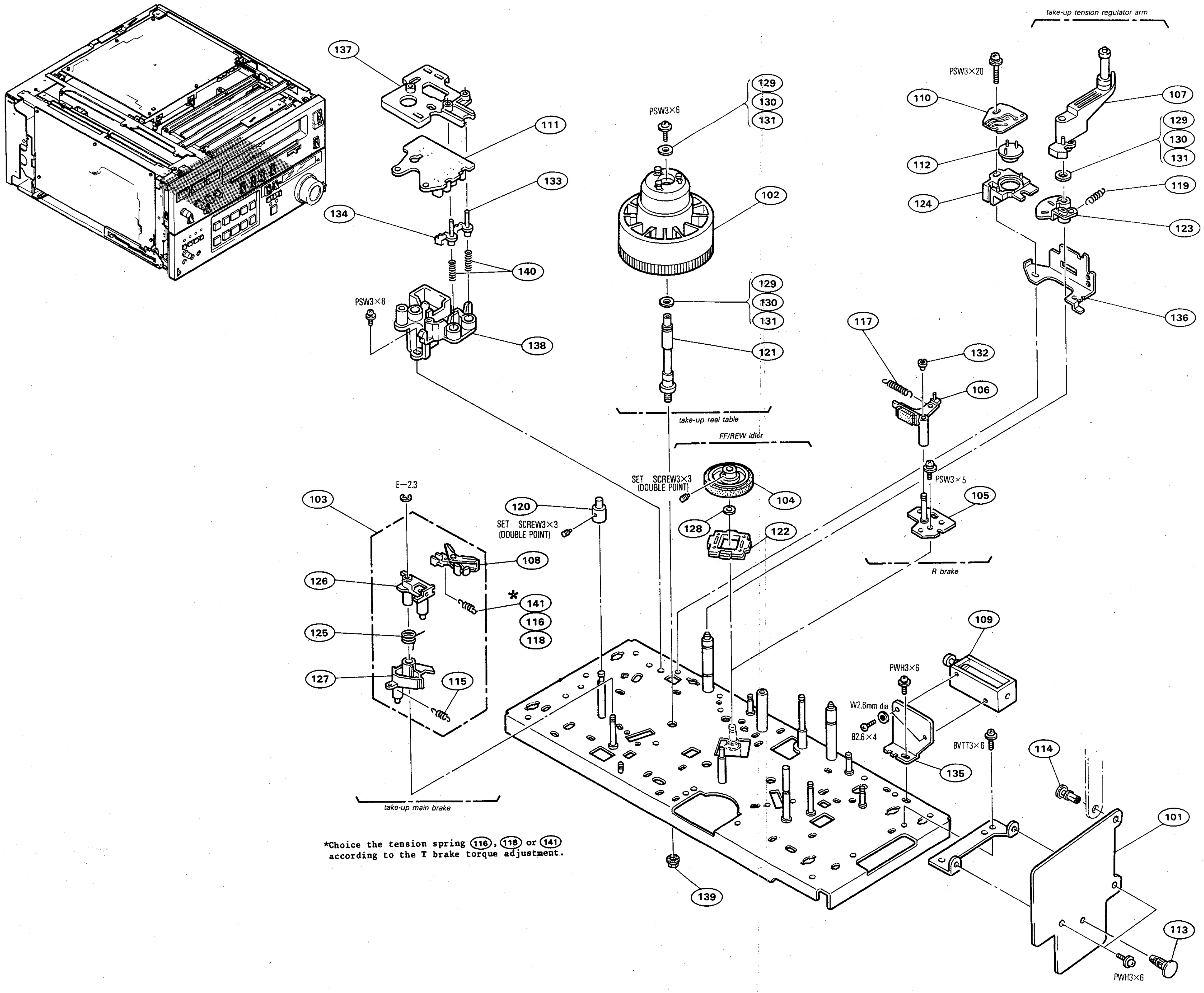



supply tension regulator arm
6
34
9
SET SCREW3×3 (FLAT POINT)
34
38
25
26
W3mm dia
SET SCREW3×3 (FLAT POINT)
5
39
18
17
13
21
4
38
28
PHW3×5
3
supply reel table
PSW3×6
35
36
37
1
35
36
37
23
PSW3×8
38
24
40
19
E-3
27
8
38
20
12
43
VTT3×6
32
B3×4
33
SET SCREW3×4 (DOUBLE POINT)
reel motor
41
11
22
13
BVTT3×6
7
PWH3×5
search solenoid
10
E 2.3
2
42
15
16
30
29
31
14
supply main brake

*Choice the tension spring ⑮, ⑯ or ㊷ according to the S brake torque adjustment.

No.	Part No.	SP	Description
1	A-6739-017-A	s	TABLE ASSY, REEL
2	A-6741-038-B	s	BRAKE ASSY, MAIN
3	X-3668-706-0	o	BASE ASSY, S TENSION REGULATOR
4	X-3668-707-0	s	BAND ASSY, S TENSION REGULATOR
5	X-3668-708-0	s	ARM(A)ASSY, S TENSION REGULATOR
6	X-3668-709-0	s	SHAFT (1) ASSY, ROLLER
7	X-3668-717-0	o	BASE ASSY, SEARCH
8	X-3668-725-0	o	ARM (C) ASSY, SKEW
9	X-3668-727-0	s	GUIDE ASS'Y, TAPE
10	X-3668-749-0	s	HOLDER ASSY, LINING
11	1-454-417-41	s	SOLENOID, PLUNGER
12	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
13	3-534-238-XX	s	SPRING, TENSION (23T)
14	3-535-369-XX	s	SPRING, TENSION (12T)
15	3-548-124-00	s	SPRING, TENSION
16	3-555-210-00	s	SPRING, TENSION
17	3-668-787-02	s	ARM, S DETECTION
18	3-668-794-00	o	ARM (A), SKEW
19	3-668-795-00	s	SPRING
20	3-668-797-00	o	ARM, SKEW LOCK
21	3-668-804-00	s	LINK, DETECTION TENSION
22	3-668-808-00	s	ARM, FWD, SEARCH
23	3-668-827-00	o	SHAFT (S), REEL
24	3-668-835-00	s	ARM (B), SKEW
25	3-668-874-00	s	FLANGE (1), LOWER
26	3-668-936-00	s	ARM (B), S TENSION REGULATOR
27	3-668-937-00	s	CLAW, SKEW LOCK
28	3-668-939-00	o	ARM, BAND LOCK
29	3-668-966-00	s	SPRING
30	3-668-970-00	o	ARM, BRAKE
31	3-668-971-00	o	ARM, BRAKE RELEASE
32	3-672-743-01	o	BRACKET, MOTOR
33	3-672-744-01	s	PULLEY (R), MOTOR
34	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
35	3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
36	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
37	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
38	3-703-074-00	s	CAP 3, SHAFT
39	3-718-389-01	s	WASHER (DIA. 3), SUS
40	3-733-619-01	s	LEVER, SKEW
41	4-304-749-00	o	NUT, FLANGE
42	4-907-156-01	s	SPRING, TENSION
43	8-835-178-01	s	MOTOR, DC FN30-T26N1E

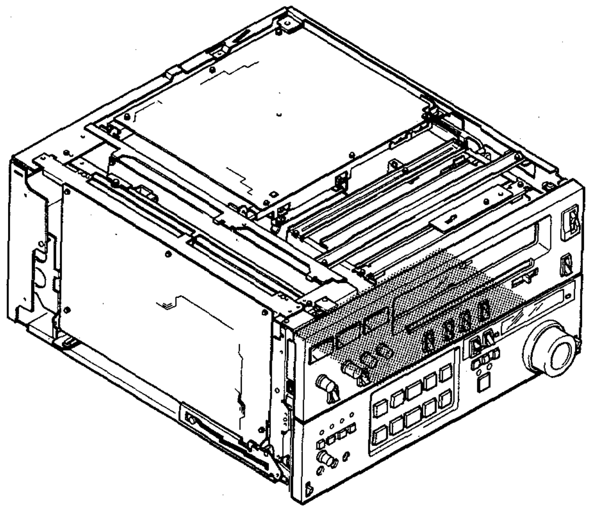
REEL CHASSIS (2), TAKE-UP SIDE

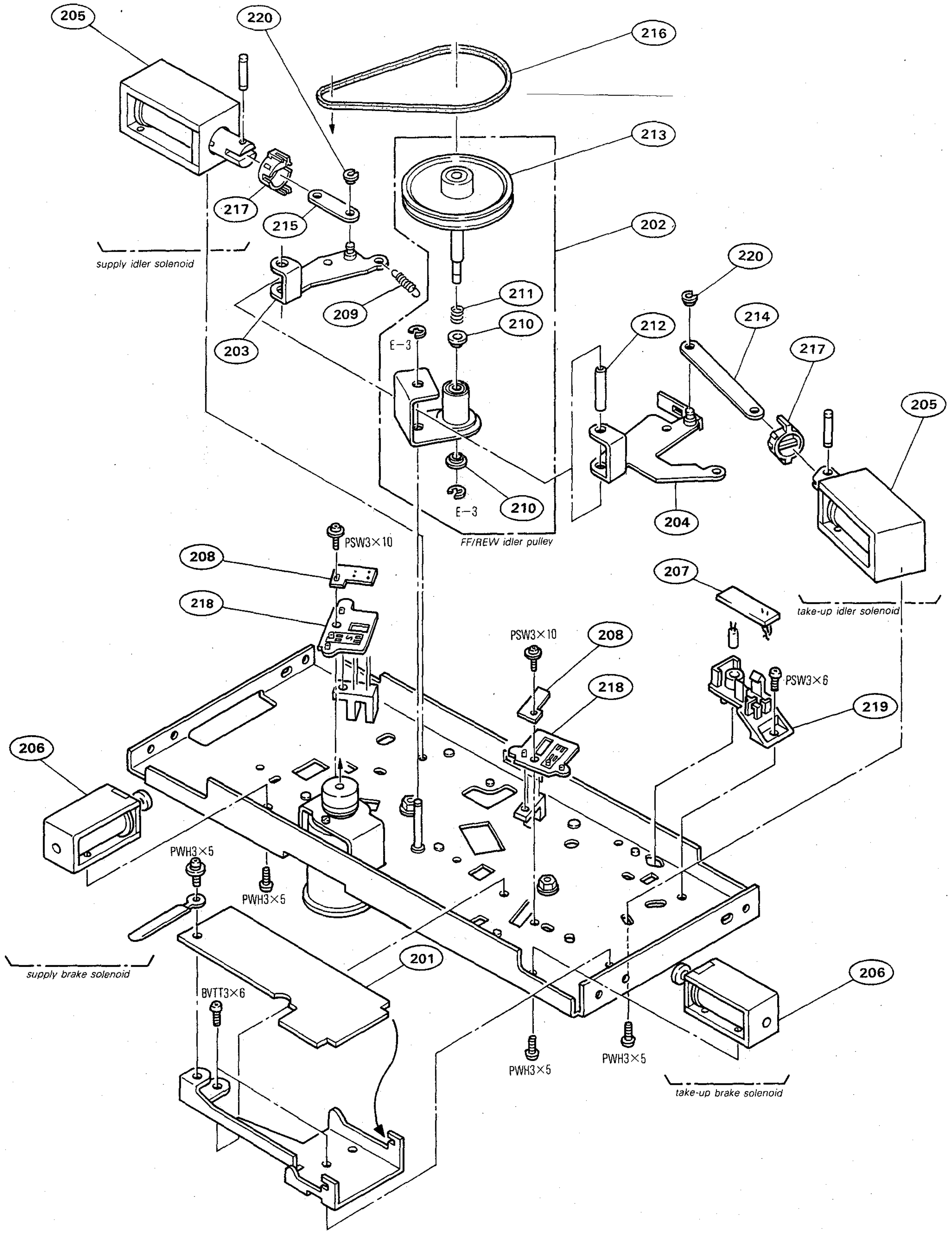

137
111
133
134
140
PSW3×8
138
PSW3×6
129
130
131
102
121
take-up reel table
FF/REW idler
SET SCREW3×3
(DOUBLE POINT)
104
128
122
take-up tension regulator arm
PSW3×20
110
112
124
107
119
123
136
117
132
106
PSW3×5
105
R brake
103
E-2.3
120
SET SCREW3×3
(DOUBLE POINT)
108
126
*
141
116
118
125
127
115
take-up main brake
109
PWH3×6
W2.6mm dia
B2.6×4
BVTT3×6
135
114
101
113
PWH3×6
139

*Choice the tension spring (116), (118) or (141)
according to the T brake torque adjustment.

No.		Part No.	SP	Description
101	⚠	A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
102		A-6739-017-A	s	TABLE ASS'Y, REEL
103		A-6741-038-B	s	BRAKE ASS'Y, MAIN
104		X-3646-026-0	s	IDLER ASS'Y, FF
105		X-3668-705-0	o	BASE ASS'Y, R BRAKE
106		X-3668-737-0	s	BRAKE ASS'Y, R
107		X-3668-738-0	s	ARM ASS'Y, T TENSION REGULATOR
108		X-3668-749-0	s	HOLDER ASS'Y, LINING
109		1-454-446-11	s	SOLENOID, PLUNGER
110		1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
111		1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
112		1-806-232-21	s	DETECTOR MB-1102/S.N
113		2-382-416-01	o	SUPPORT, PC
114		3-531-576-11	s	REVET
115		3-535-369-XX	s	SPRING, TENSION (12T)
116		3-548-124-00	s	SPRING, TENSION
117		3-549-861-00	s	SPRING, TENSION
118		3-555-210-00	s	SPRING, TENSION
119		3-642-427-00	s	SPRING, TENSION
120		3-668-031-0C	o	RETAINER (UPPER), CASSETTE
121		3-668-766-00	o	SHAFT (T), REEL
122		3-668-780-00	o	CUSHION, IDLER
123		3-668-788-00	s	ARM, T DETECTION
124		3-668-789-00	o	HOLDER, BRIDGE, PHOTO
125		3-668-966-00	s	SPRING
126		3-668-970-00	o	ARM, BRAKE
127		3-668-971-00	o	ARM, BRAKE RELEASE
128		3-701-441-21	s	WASHER, POLY 4MM DIA., 0.50T
129		3-701-444-01	s	WASHER, POLY 6MM DIA., 0.13T
130		3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
131		3-701-444-21	s	WASHER, POLY 6MM DIA., 0.50T
132		3-703-074-00	s	CAP 3, SHAFT
133		3-718-307-01	s	ACTUATOR, TRC
134		3-718-307-11	s	ACTUATOR, TRC
135		3-718-308-01	o	BRACKET, SK SOLENOID
136		3-718-326-01	o	STOPPER (SP)
137		3-718-342-01	o	TRC-BOX (UPPER)
138		3-718-343-01	o	TRC-BOX (LOWER)
139		4-304-749-00	o	NUT, FLANGE
140		4-858-779-00	s	SPRING, COMPRESSION
141		4-907-156-01	s	SPRING, TENSION

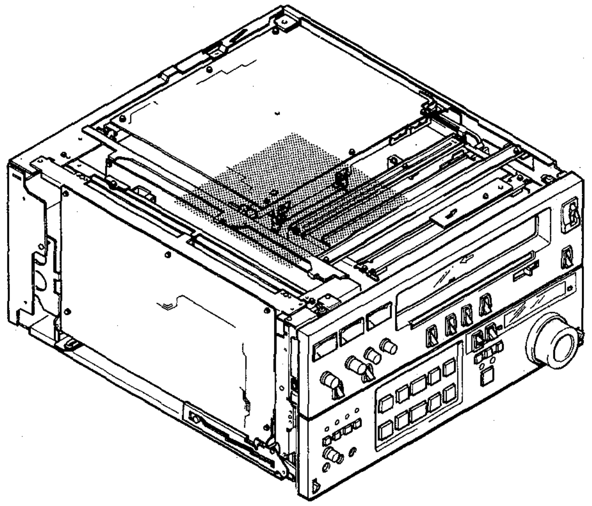
REEL CHASSIS (3), BACK SIDE

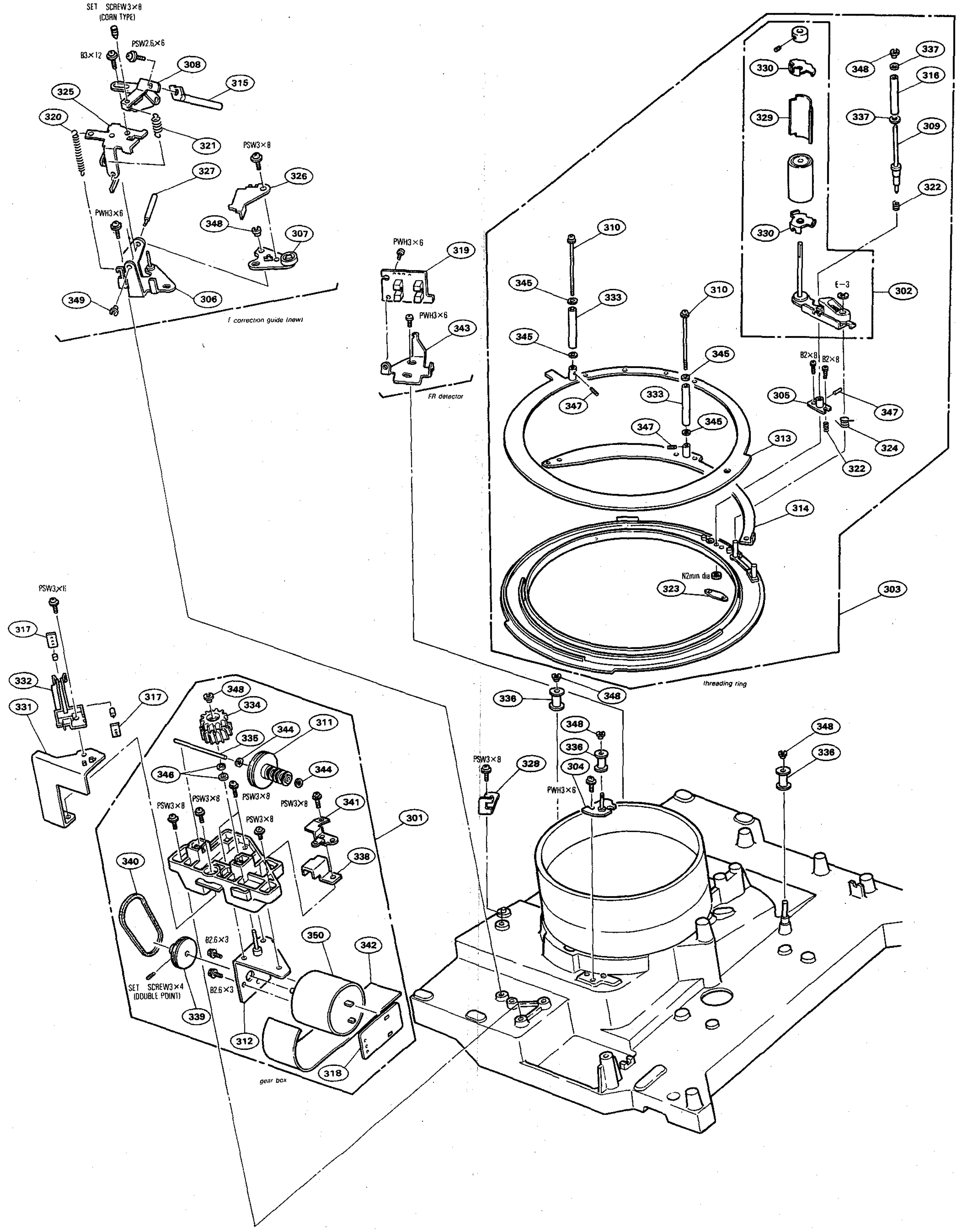



205
220
216
213
202
217
215
supply idler solenoid
209
203
E-3
211
210
220
212
214
217
205
210
E-3
FF/REW idler pulley
204
208
PSW3×10
218
207
take-up idler solenoid
PSW3×10
208
218
PSW3×6
219
206
PWH3×5
PWH3×5
201
supply brake solenoid
BVTT3×6
PWH3×5
PWH3×5
206
take-up brake solenoid

No.		Part No.	SP	Description
201	⚠	A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
202		A-6740-069-B	s	PULLEY BLOCK, ASS'Y, IDLER
203		X-3668-703-0	o	LEVER ASS'Y, S
204		X-3668-704-0	o	LEVER ASS'Y, T
205		1-454-415-11	s	SOLENOID, PLUNGER
206		1-454-417-41	s	SOLENOID, PLUNGER
207		1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
208		1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
209		3-437-452-00	s	SPRING, TENSION
210		3-650-512-00	s	COLLAR, (A)
211		3-651-572-00	s	SPRING, COMPRESSION
212		3-668-048-11	o	SPACER (DIA. 4x20)
213		3-668-772-00	s	SHAFT, IDLER PULLEY
214		3-668-781-00	o	JOINT, T
215		3-668-782-00	o	JOINT, S
216		3-668-785-00	s	BELT (67x2)
217		3-668-826-00	s	RETAINER, PIN, SOLENOID
218		3-668-828-02	o	BRACKET, PS
219		3-672-752-01	o	HOLDER, LED
220		3-703-074-00	s	CAP 3, SHAFT

THREADING RING BLOCK




SET SCREW3×8 (CORN TYPE)
B3×12
PSW2.6×6
PSW3×8
PWH3×6
T correction guide (new)
PWH3×6
PWH3×6
FR detector
E-3
B2×8
B2×8
N2mm dia
threading ring
PSW3×6
PSW3×8
PSW3×8
PSW3×8
PSW3×8
PSW3×8
PWH3×8
B2.6×3
B2.6×3
SET SCREW3×4 (DOUBLE POINT)
gear box
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
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346
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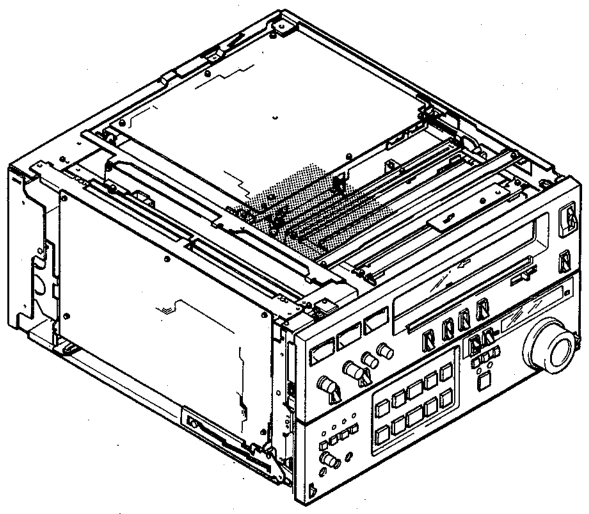
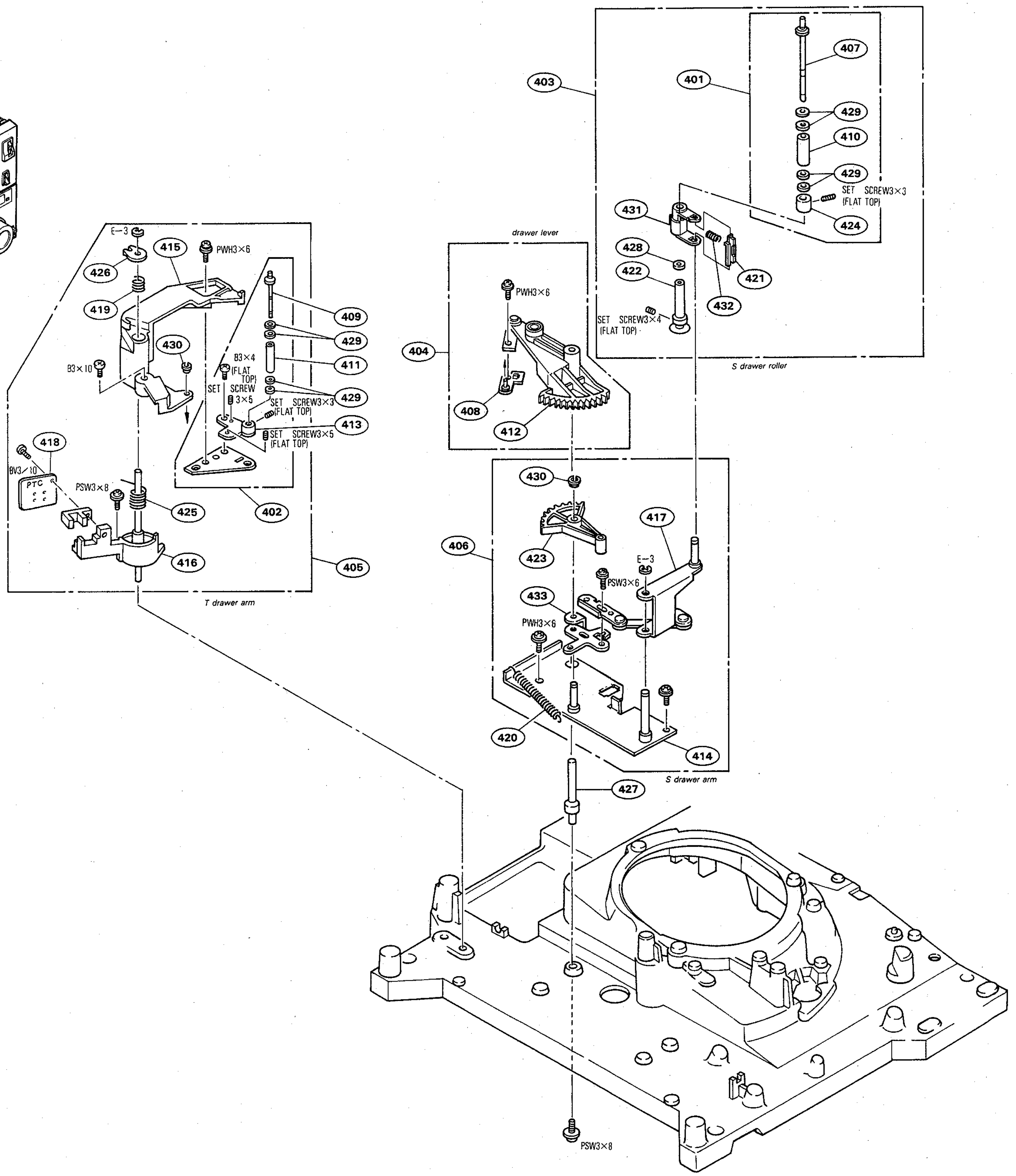
349
350

No.	Part No.	SP	Description
301	A-6750-219-A	s	BOX BLOCK ASS'Y, GEAR
302	A-6750-223-A	s	PINCH ROLLER BLOCK ASS'Y
303	A-6750-238-A	s	RING BLOCK ASSY, MAIN
304	X-3668-719-0	o	ROLLER ASS'Y, RING
305	X-3668-720-0	o	BASE ASS'Y, ROLLER, PRECEDING
306	X-3668-721-0	o	CHASSIS ASS'Y, GUIDE
307	X-3668-722-0	s	LOCKER ASS'Y, FR
308	X-3668-723-2	o	ARM ASS'Y, GUIDE, T CORRECTION
309	X-3668-724-3	s	SHAFT ASS'Y, ROLLER, PRECEDING
310	X-3668-733-0	s	SHAFT ASS'Y, SR GUIDE
311	X-3668-743-0	s	PULLEY ASS'Y, WORM
312	X-3672-704-1	o	BRACKET ASS'Y, MOTOR
313	X-3672-710-1	o	RING (UPPER) ASS'Y, SUB
314	X-3672-711-1	o	RING (LOWER) ASS'Y, SUB
315	X-3672-718-2	s	SHAFT ASS'Y, GUIDE
316	X-3718-303-2	s	GUIDE ASS'Y (T), TAPE
317	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
318	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
319	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
320	3-143-067-00	s	SPRING, TENSION
321	3-437-289-00	s	SPRING, TENSION
322	3-634-196-00	s	SPRING
323	3-668-743-00	o	NUT, PLATE, ROLLER, PRECEDING
324	3-668-745-00	s	SPRING
325	3-668-749-02	o	ARM (A), GUIDE, T CORRECTION
326	3-668-753-00	o	PLATE, ADJUSTMENT, FR LOCKER
327	3-668-754-00	o	SHAFT, GUIDE ARM, T CORRECTION
328	3-668-755-00	o	PLATE, STOPPER, SR
329	3-668-888-00	o	COVER, PINCH
330	3-668-889-00	o	CAP, PINCH ROLLER
331	3-668-900-00	o	BRACKET, T SENSOR
332	3-668-901-00	s	HOLDER, T PHOTO
333	3-668-919-00	s	ROLLER, SR GUIDE
334	3-668-947-00	s	PINION, L
335	3-668-948-00	o	SHAFT, WORM
336	3-668-963-03	s	ROLLER, RING
337	3-669-926-01	s	WASHER (3), THRUST
338	3-669-960-00	o	RETAINER, SHAFT
339	3-672-736-01	s	PULLEY, LM
340	3-672-737-01	s	BELT, SQUARE
341	3-672-738-01	o	PLATE, GROUND, SLED
342	3-672-739-01	o	BELT, LM SHIELD
343	3-672-790-01	o	BRACKET, FR DETECTION
344	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.50T
345	3-701-438-11	s	WASHER, POLY 2.5MM DIA., 0.25T
346	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
347	3-701-505-00	s	SET SCREW, DUBLE POINT 3x3
348	3-703-074-00	s	CAP 3, SHAFT
349	3-703-075-00	s	CAP 2, SHAFT
350	1-541-376-11	s	MOTOR, DC (DNR-4700A)

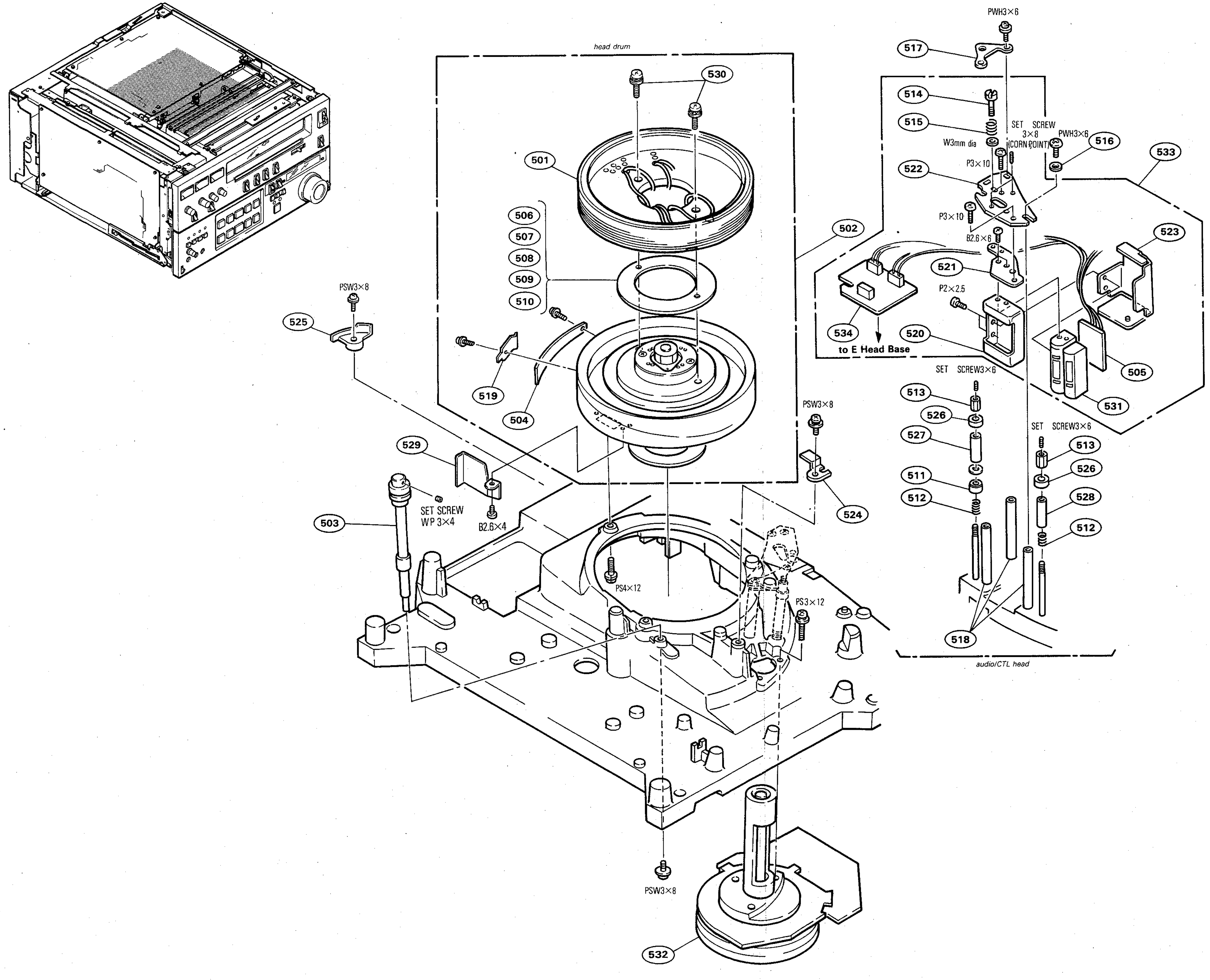
THREADING ARM




403
401
407
429
410
429
SET SCREW3×3 (FLAT TOP)
424
431
428
422
SET SCREW3×4 (FLAT TOP)
421
432
S drawer roller
drawer lever
PWH3×6
404
408
412
E-3
415
PWH3×6
426
419
430
B3×10
B3×4 (FLAT TOP)
SET SCREW 3×5
409
429
411
429
SET SCREW3×3 (FLAT TOP)
413
SET SCREW3×5 (FLAT TOP)
418
BV3/10
PTC
PSW3×8
425
402
416
405
T drawer arm
430
417
406
423
E-3
PSW3×6
433
PWH3×6
420
414
S drawer arm
427
PSW3×8

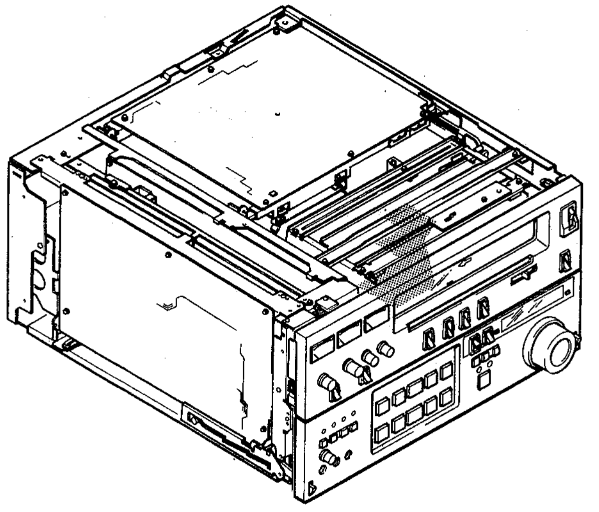
No.	Part No.	SP	Description
401	A-6746-034-A	s	ROLLER BLOCK ASS'Y (2), DRAWER
402	A-6746-045-A	s	ROLLER BLOCK ASS'Y, T GUIDE
403	A-6746-057-A	s	ROLLER BLOCK ASS'Y, S DRAWER
404	A-6750-202-A	o	LEVER BLOCK ASS'Y, DRAWER
405	A-6750-218-A	o	ARM BLOCK ASS'Y, T DRAWER
406	A-6750-225-E	o	ARM BLOCK, ASS'Y, DRAWER, S
407	X-3668-712-3	s	SHAFT (2) ASS'Y, ROLLER
408	X-3668-713-0	o	LINK (B) ASS'Y, DRIVING
409	X-3668-716-0	s	SHAFT (3) ASS'Y, ROLLER
410	X-3668-718-0	s	GUIDE ASS'Y, TAPE
411	X-3668-727-0	o	GUIDE ASS'Y, TAPE
412	X-3668-729-0	s	LEVER ASS'Y, DRAWER
413	X-3672-705-1	o	PLATE ASS'Y, GUIDE, T
414	X-3672-706-1	o	BASE ASS'Y, S DRAWER ARM
415	X-3672-708-1	o	ARM ASS'Y, T DRAWER
416	X-3718-305-1	o	RETAINER ASS'Y, ARM, T DRAWER
417	X-3718-615-2	o	ARM ASS'Y, DRAWER, S
418	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
419	3-534-854-00	s	SPRING, COMPRESSION
420	3-540-506-00	s	SPRING, TENSION
421	3-668-718-00	s	RETAINER, SPRING, S DRAWER
422	3-668-719-00	s	HOLDER (L), S GUIDE
423	3-668-721-00	s	ARM, S DRIVING
424	3-668-724-00	o	FLANGE (2), LOWER
425	3-668-734-00	o	SPRING
426	3-668-735-00	s	RETAINER, SPRING
427	3-668-760-00	o	SHAFT, DRAWER LEVER
428	3-669-946-00	s	RING (P4), O
429	3-701-438-01	s	WASHER, POLY 2.5MM DIA., 0.13T
430	3-703-074-00	s	CAP 3, SHAFT
431	3-718-701-02	s	HOLDER (M), S GUIDE
432	3-718-773-01	s	SPRING, COMPRESSION
433	3-734-304-01	o	LIMITER, S DRAWER

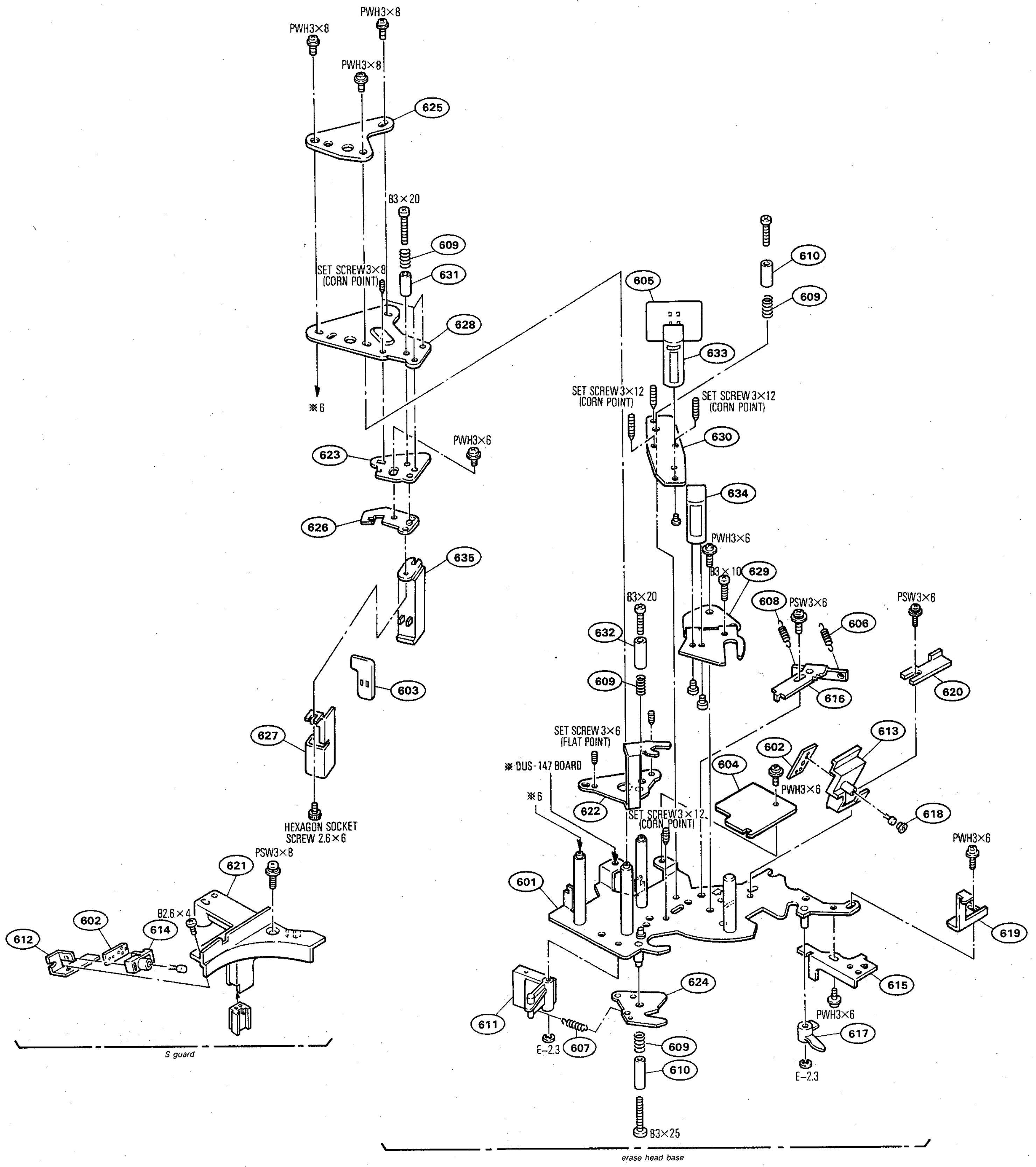
DRUM AND CAPSTAN BLOCKS


head drum
530
501
506
507
508
509
510
519
504
502
PSW3×8
525
529
SET SCREW
WP 3×4
B2.6×4
503
PSW3×8
524
PS4×12
PS3×12
PSW3×8
532
PWH3×6
517
514
515
SET SCREW
3×8
(CORN POINT)
W3mm dia
PWH3×6
516
533
522
P3×10
P3×10
B2.6×6
523
521
P2×2.5
534
to E Head Base
520
505
531
SET SCREW3×6
513
526
527
511
512
SET SCREW3×6
513
526
528
512
518
audio/CTL head

No.	Part No.	SP	Description
501	A-6709-615-A	s	UPPER DRUM ASS'Y, DUR-43-R
502	A-6709-674-A	s	HEAD DRUM ASS'Y, DUH-43B-R
503	A-6746-054-A	s	ROLLER ASS'Y, GUIDE, TAPE
504	1-586-633-00	s	DETECTOR, DEW
505	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
506	3-630-029-01	s	SPACER, FLANGE (0.01T)
507	3-630-029-11	s	SPACER, FLANGE (0.02T)
508	3-630-029-21	s	SPACER, FLANGE (0.05T)
509	3-630-029-31	s	SPACER, FLANGE (0.1T)
510	3-630-029-41	s	SPACER, FLANGE (0.03T)
511	3-641-612-00	s	GUIDE, TAPE
512	3-641-615-00	s	SPRING, COMPRESSION
513	3-641-616-00	s	NUT, TAPE GUIDE ADJUSTMENT
514	3-641-621-00	o	SCREW, HEAD ADJUSTMENT
515	3-641-622-00	s	SPRING, COMPRESSION
516	3-645-076-00	o	WASHER, M-REEL S
517	3-647-815-00	o	PLATE, ADJUSTMENT, CTL HEAD
518	3-647-816-00	o	POLE, SUPPORT, CTL BRACKET
519	3-655-631-00	o	TERMINAL, GROUND
520	3-655-675-02	o	CASE (F), AU
521	3-655-676-01	o	BRACKET (A), CTL HEAD
522	3-655-677-01	o	BRACKET (B), CTL HEAD
523	3-655-678-03	o	CASE (B), AU
524	3-660-102-00	s	GUIDE, TAPE
525	3-672-762-01	o	PIN, DRUM
526	3-672-763-01	o	CAM, P OFFSET PREVENTION
527	3-688-807-01	s	FLANGE, TAPE GUIDE
528	3-718-388-01	s	GUIDE (TG-4N), TAPE
529	3-733-655-01	o	SHIELD, RPCN
530	7-682-563-04	s	SCREW +B4x12
531	8-825-578-22	s	HEAD, ACE
532	8-835-258-02	s	MOTOR, DC BHF-1915B
533	A-6736-071-B	o	HEAD BLOCK ASS'Y, AUDIO
534	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

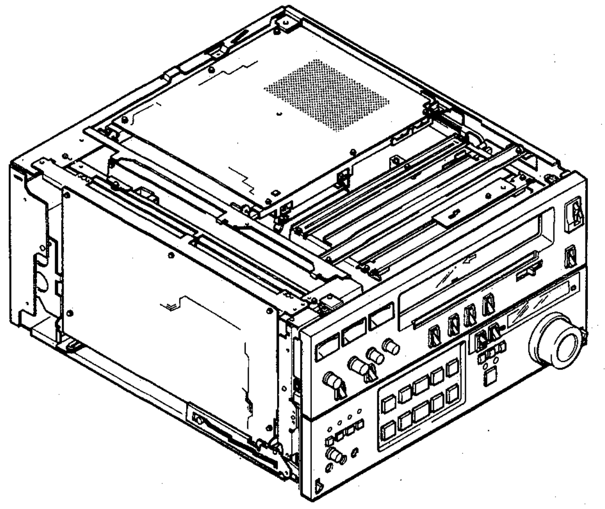
ERASE HEAD BASE

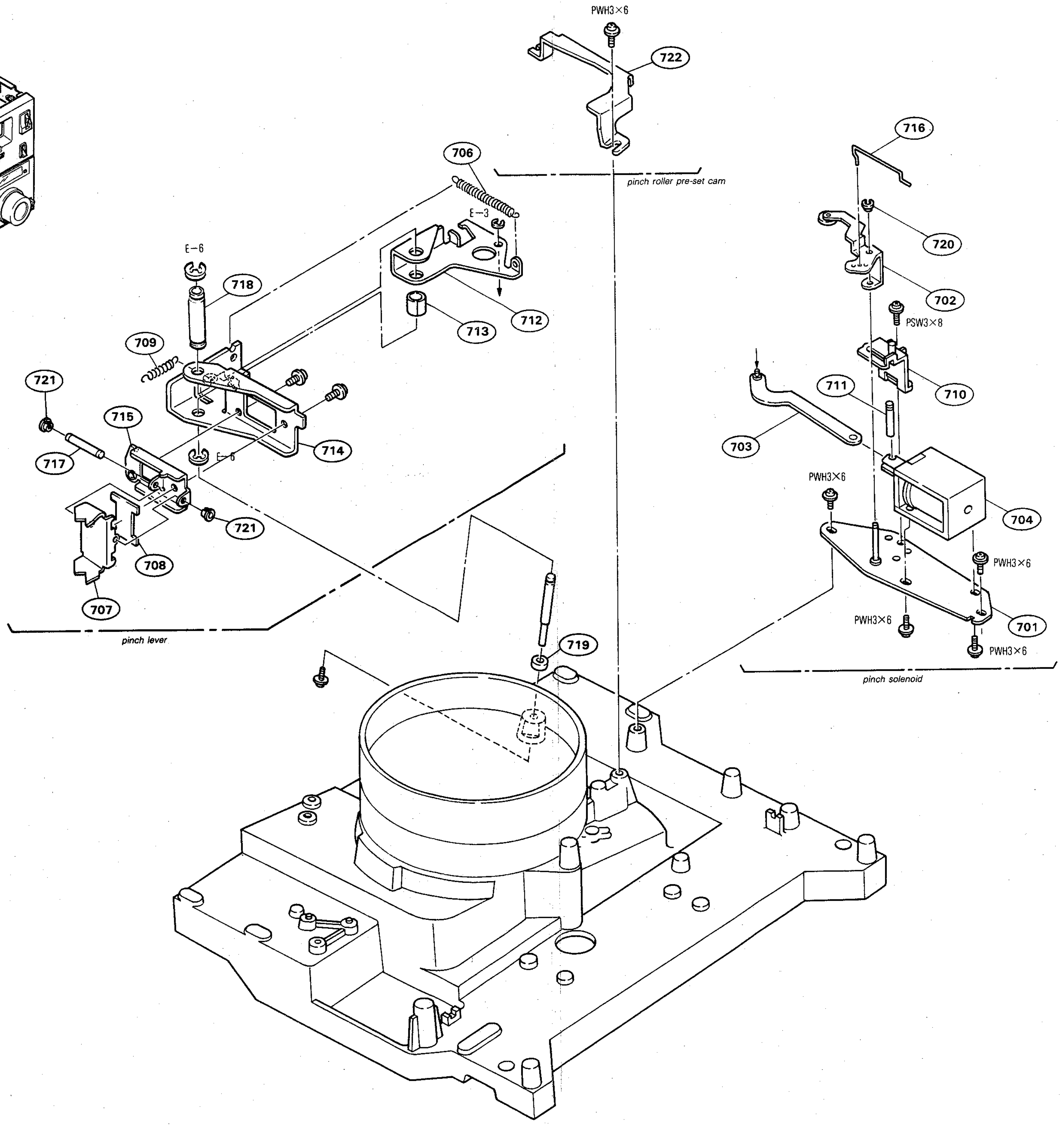



PWH3×8
PWH3×8
PWH3×8
625
B3×20
609
SET SCREW 3×8 (CORN POINT)
631
628
※6
PWH3×6
623
626
635
603
627
HEXAGON SOCKET SCREW 2.6×6
PSW3×8
621
602
B2.6×4
614
612
S guard
610
609
605
633
SET SCREW 3×12 (CORN POINT)
SET SCREW 3×12 (CORN POINT)
630
634
PWH3×6
B3×10
629
B3×20
632
609
608
PSW3×6
606
PSW3×6
616
620
SET SCREW 3×6 (FLAT POINT)
※ DUS-147 BOARD
※6
622
SET SCREW 3×12 (CORN POINT)
602
604
PWH3×6
613
618
PWH3×6
601
619
615
624
611
E-2.3
607
609
610
PWH3×6
617
E-2.3
B3×25
erase head base

No.	Part No.	SP	Description
601	X-3733-605-1	o	BASE ASS'Y, E HEAD
602	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
603	1-622-726-11	o	PRINTED CIRCUIT BOARD, HN-84
604	1-629-474-11	o	PRINTED CIRCUIT BOARD, HN-130
605	1-629-475-11	o	PRINTED CIRCUIT BOARD, EC-32
606	3-534-238-XX	s	SPRING, TENSION (23T)
607	3-535-531-00	s	SPRING, TENSION
608	3-538-102-00	s	SPRING, TENSION
609	3-637-335-00	s	SPRING, COMPRESSION (C)
610	3-657-086-00	o	SPACER (3x20)
611	3-668-708-00	o	ARM, DRIVING, CORRECTION GUIDE
612	3-668-809-02	o	BRACKET, HOLDER
613	3-668-832-02	o	HOLDER (S)
614	3-668-837-00	o	HOLDER, LED
615	3-668-859-00	o	STOPPER, RING
616	3-668-860-00	o	HOOK, SPRING, TENSION REGULATOR
617	3-668-894-00	o	LEVER, RELEASE
618	3-669-920-00	o	COVER, S PHOTO
619	3-669-963-00	o	SPRING, LEAF, GROUND
620	3-669-964-00	o	PLATE, GROUND
621	3-672-764-03	s	GUARD, S
622	3-718-622-01	s	HOLDER (UPPER), S
623	3-718-623-01	o	PLATE, TC
624	3-718-624-01	s	HOLDER (LOWER), S
625	3-718-641-01	o	PLATE, ADJUSTMENT, Y
626	3-718-644-01	o	PLATE, BALANCE
627	3-718-646-01	o	SHIELD, TC HEAD
628	3-718-649-01	o	PLATE, Y
629	3-733-609-01	o	BASE, E HEAD
630	3-733-610-01	o	BASE, CTL
631	4-855-006-01	s	SPACER (3x12)
632	4-855-006-11	s	SPACER (3x14)
633	8-825-514-20	s	HEAD, CTL (PP170-58)
634	8-825-544-20	s	HEAD, ERASE
635	8-825-771-31	s	HEAD, TIME CODE PP295-58

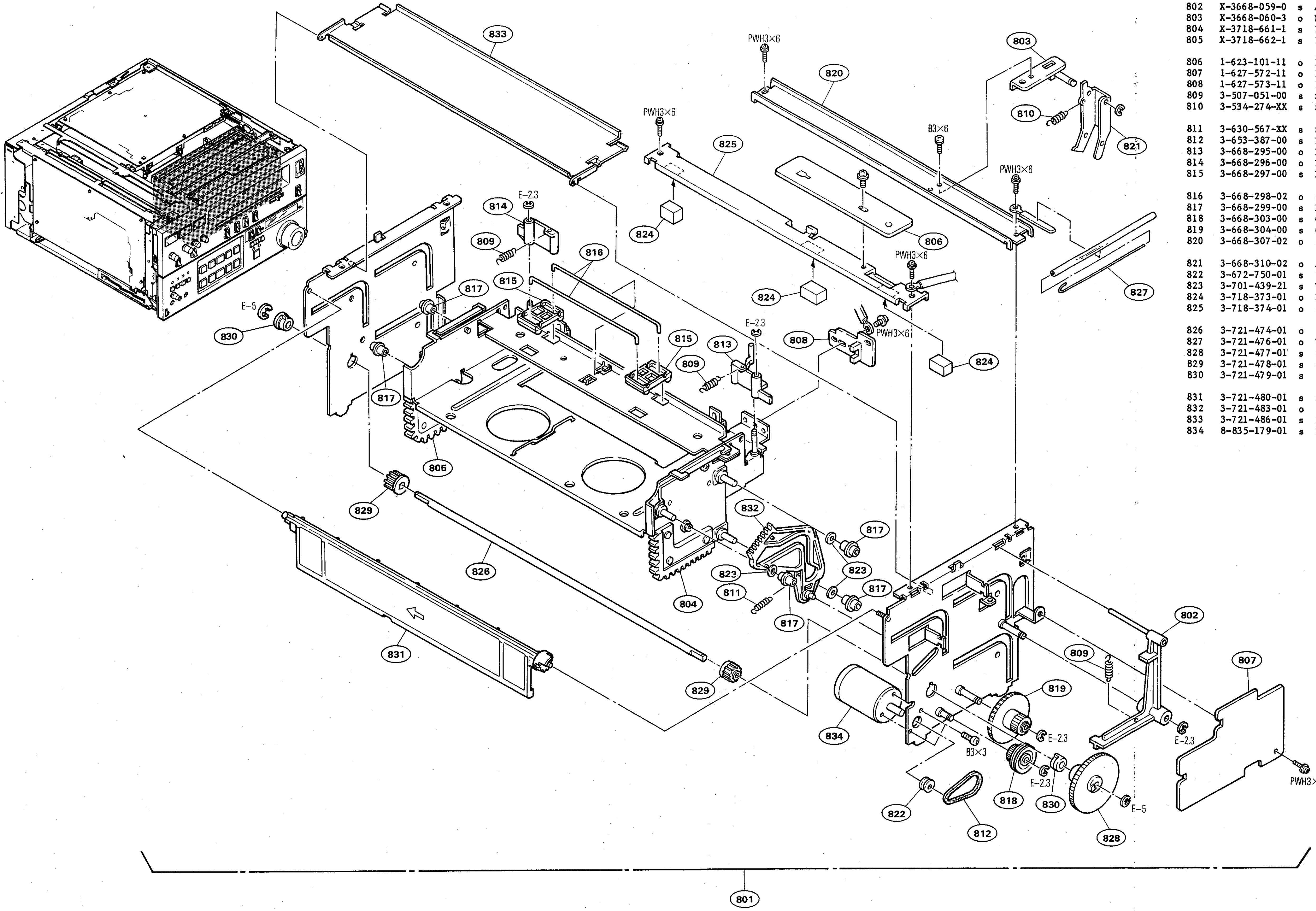
PINCH LEVER AND PINCH SOLENOID BLOCKS




PWH3×6
722
pinch roller pre-set cam
706
E-3
712
713
716
720
702
PSW3×8
710
711
703
704
PWH3×6
PWH3×6
PWH3×6
PWH3×6
701
pinch solenoid
E-6
718
709
721
715
714
E-6
717
721
708
707
pinch lever
719

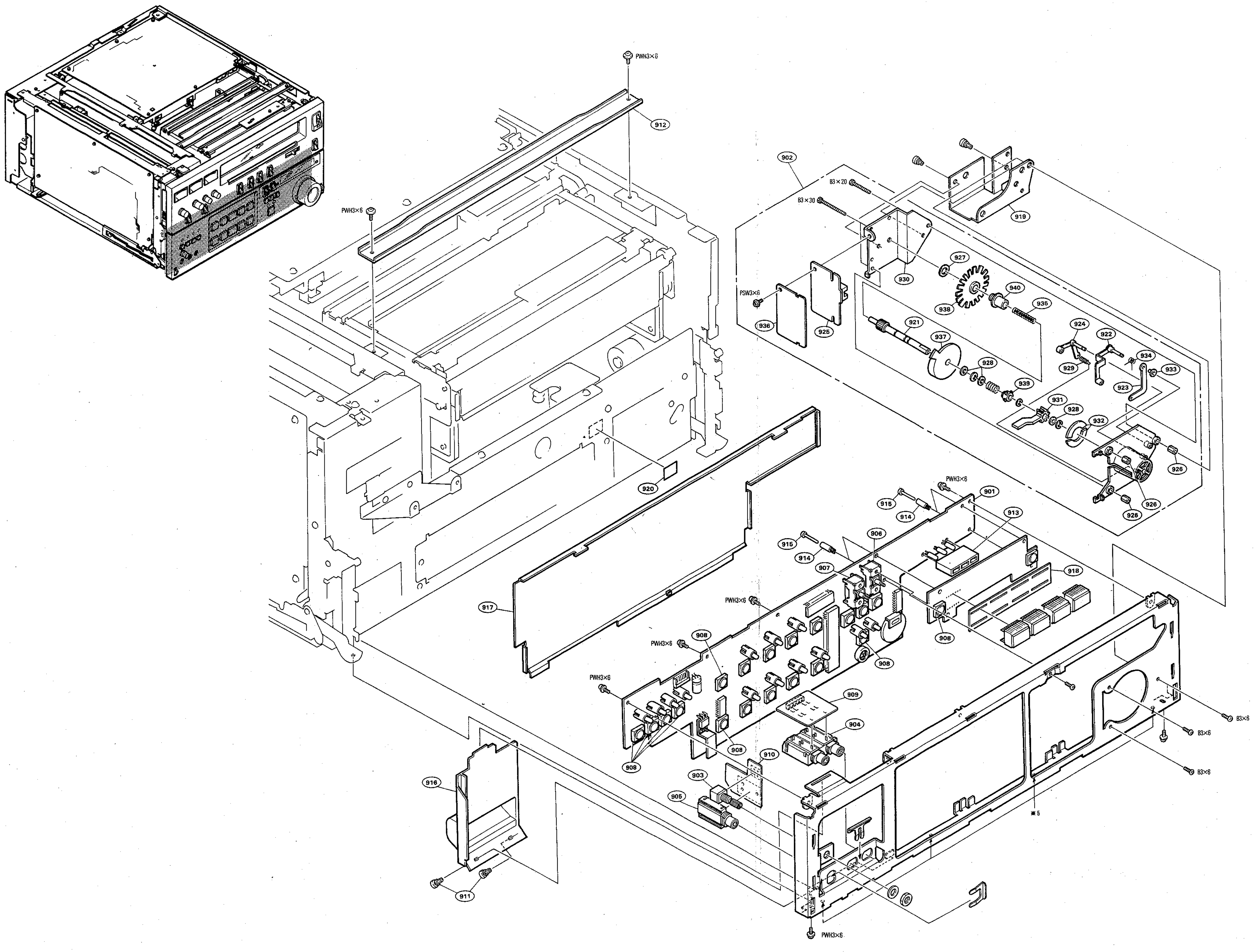
No.	Part No.	SP	Description
701	X-3668-734-0	o	BASE ASS'Y, PINCH PRESS
702	X-3668-735-3	s	LEVER ASS'Y, RESERVE PRESS
703	X-3668-736-0	o	JOINT ASS'Y
704	1-454-416-31	s	SOLENOID, PLUNGER
706	3-610-265-02	s	SPRING
707	3-642-518-00	o	LEVER, PINCH
708	3-642-519-00	o	SPRING
709	3-645-392-00	s	SPRING, TENSION
710	3-668-863-00	s	GUIDE, ARBOR
711	3-668-864-00	s	PIN, SOLENOID
712	3-668-865-00	o	LEVER (B), PINCH PRESS
713	3-668-867-00	o	SPACER (8x9)
714	3-668-868-00	o	LEVER (A), PINCH PRESS
715	3-668-883-00	o	PLATE, ADJUSTMENT, PINCH PRESS
716	3-668-884-03	o	JOINT, RESERVE PRESS
717	3-668-895-00	o	SHAFT
718	3-668-896-00	o	SLEEVE, PRESS LEVER, PINCH
719	3-672-733-01	o	TABLE, SHAFT, PRESS LEVER
720	3-703-074-00	s	CAP 3, SHAFT
721	3-703-075-00	s	CAP 2, SHAFT
722	3-718-777-02	o	DECK, RESERVE PRESS

CASSETTE-UP COMPARTMENT BLOCK


833
PWH3×6
820
803
810
821
PWH3×6
825
B3×6
PWH3×6
814
E-2.3
809
816
824
806
PWH3×6
827
817
815
824
E-5
830
E-2.3
808
PWH3×6
815
813
824
809
817
805
832
817
829
823
823
826
811
817
804
817
802
831
809
807
829
819
834
E-2.3
B3×3
E-2.3
818
E-2.3
830
E-5
PWH3×6
822
812
828
801

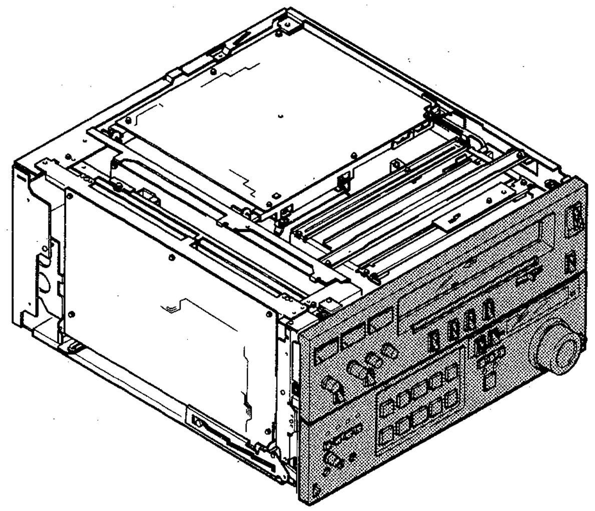
No.	Part No.	SP	Description
801	A-6751-391-A	s	CASSETTE-UP BLOCK ASS'Y
802	X-3668-059-0	s	ARM ASS'Y, SWITCH, DOWN
803	X-3668-060-3	o	HOLDER ASS'Y, ARM
804	X-3718-661-1	s	PLATE (RIGHT) ASS'Y, RACK
805	X-3718-662-1	s	PLATE (LEFT) ASS'Y, RACK
806	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
807	1-627-572-11	o	PRINTED CIRCUIT BOARD, CC-36
808	1-627-573-11	o	PRINTED CIRCUIT BOARD, CC-37
809	3-507-051-00	s	SPRING, TENSION
810	3-534-274-XX	s	SPRING, TENSION (22T)
811	3-630-567-XX	s	SPRING, TENSION (20T)
812	3-653-387-00	s	BELT, LM
813	3-668-295-00	o	LEVER (RIGHT), CASSETTE PUSH-OUT
814	3-668-296-00	o	LEVER (LEFT), CASSETTE PUSH-OUT
815	3-668-297-00	s	RETAINER, CASSETTE
816	3-668-298-02	o	SPRING
817	3-668-299-00	s	ROLLER, GUIDE
818	3-668-303-00	s	GEAR (A)
819	3-668-304-00	s	GEAR (B)
820	3-668-307-02	o	JOINT (R), LEFT & RIGHT
821	3-668-310-02	o	ARM, LID OPEN
822	3-672-750-01	s	PULLEY, MOTOR
823	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.50T
824	3-718-373-01	o	RETAINER, LID
825	3-718-374-01	o	JOINT (F), LEFT & RIGHT
826	3-721-474-01	o	SHAFT, DRIVER
827	3-721-476-01	o	WIRE, FIXED
828	3-721-477-01	s	GEAR (C)
829	3-721-478-01	s	GEAR (D)
830	3-721-479-01	s	BEARING (6)
831	3-721-480-01	s	LID, CASSETTE
832	3-721-483-01	o	CAM, LID OPEN
833	3-721-486-01	s	REFLECTOR
834	8-835-179-01	s	MOTOR, DC MCB2B15

FUNCTION CONTROL

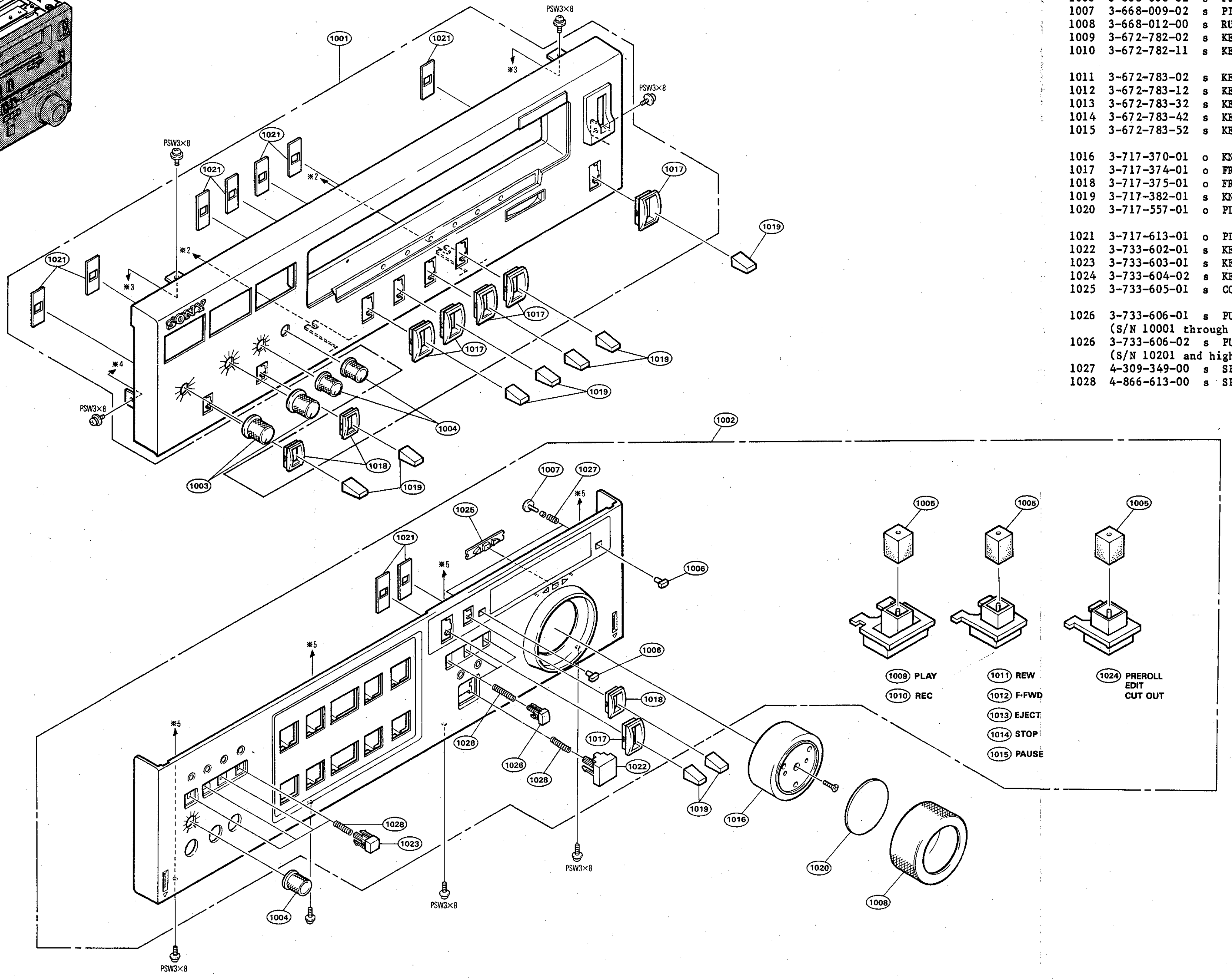

PWH3×8
912
902
B3×20
B3×30
919
927
930
940
935
938
PSW3×6
936
925
921
937
924
922
934
933
928
929
939
923
931
928
932
926
926
928
920
PWH3×6
901
915
914
913
906
915
914
907
918
917
PWH3×6
908
906
908
908
PWH3×6
909
PWH3×6
904
908
910
908
903
905
916
911
B3×8
B3×6
B3×6
✱5
PWH3×6

No.	Part No.	SP	Description
901	A-6717-525-A	o	MOUNTED CIRCUIT BOARD, KY-159
902	A-6734-238-B	s	DIAL BLOCK ASS'Y, SEARCH
903	1-237-703-11	s	RES, VAR, CARBON 2K/2K
904	1-507-797-21	s	JACK, LARGE TYPE 2P
905	1-507-854-00	s	JACK, LARGE TYPE
906	1-516-961-00	s	SWITCH, LEVER SLIDE
907	1-516-995-00	s	SWITCH, LEVER SLIDE
908	1-552-539-00	s	SWITCH, KEY BOARD
909	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
910	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
911	3-531-576-01	s	RIVET
912	3-672-765-01	o	BRACKET, C
913	3-718-657-01	o	HOLDER, LED
914	3-733-617-01	s	HOLDER, BUZZER
915	3-733-618-01	s	PIN, BUZZER HOLDER
916	3-733-620-01	o	PROTECT, MC
917	3-733-645-01	o	PROTECTOR, KY
918	3-733-652-01	o	SPACER, 7 SEG
919	3-733-668-01	o	COVER, SD
920	3-703-848-01	o	LABEL (N), SUB CAUTION
921	X-3717-226-1	o	SHAFT SUB ASS'Y, MAIN
922	X-3717-227-1	o	ARM (RIGHT) ASS'Y, S10
923	X-3717-228-1	o	ARM (LEFT) ASS'Y, S10
924	X-3717-229-1	o	ARM ASS'Y, RETURN
925	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
926	2-280-622-11	o	SUPPORT (M3), HEXAGON
927	3-662-048-00	s	WASHER, BRACKET
928	3-701-443-21	s	WASHER, POLY 5MM DIA., 0.5T
929	3-701-788-XX	s	SPRING, TENSION (15T)
930	3-717-315-01	o	PLATE, BOTTOM, SD
931	3-717-316-02	o	GUIDE, LOCK IN
932	3-717-317-01	o	PLATE, CLUTCH
933	3-717-318-01	o	BEARING, S10
934	3-717-319-01	o	SPRING, TORSION
935	3-717-320-01	o	SPRING, COMPRESSION
936	3-717-321-01	o	PROTECTOR, PTC
937	3-717-417-01	o	CAM
938	3-717-418-01	o	PLATE
939	3-717-546-01	o	GUIDE, LOCK OUT
940	3-717-553-01	o	BEARING, SD

FRONT PANEL AND KEY PANEL BLOCKS



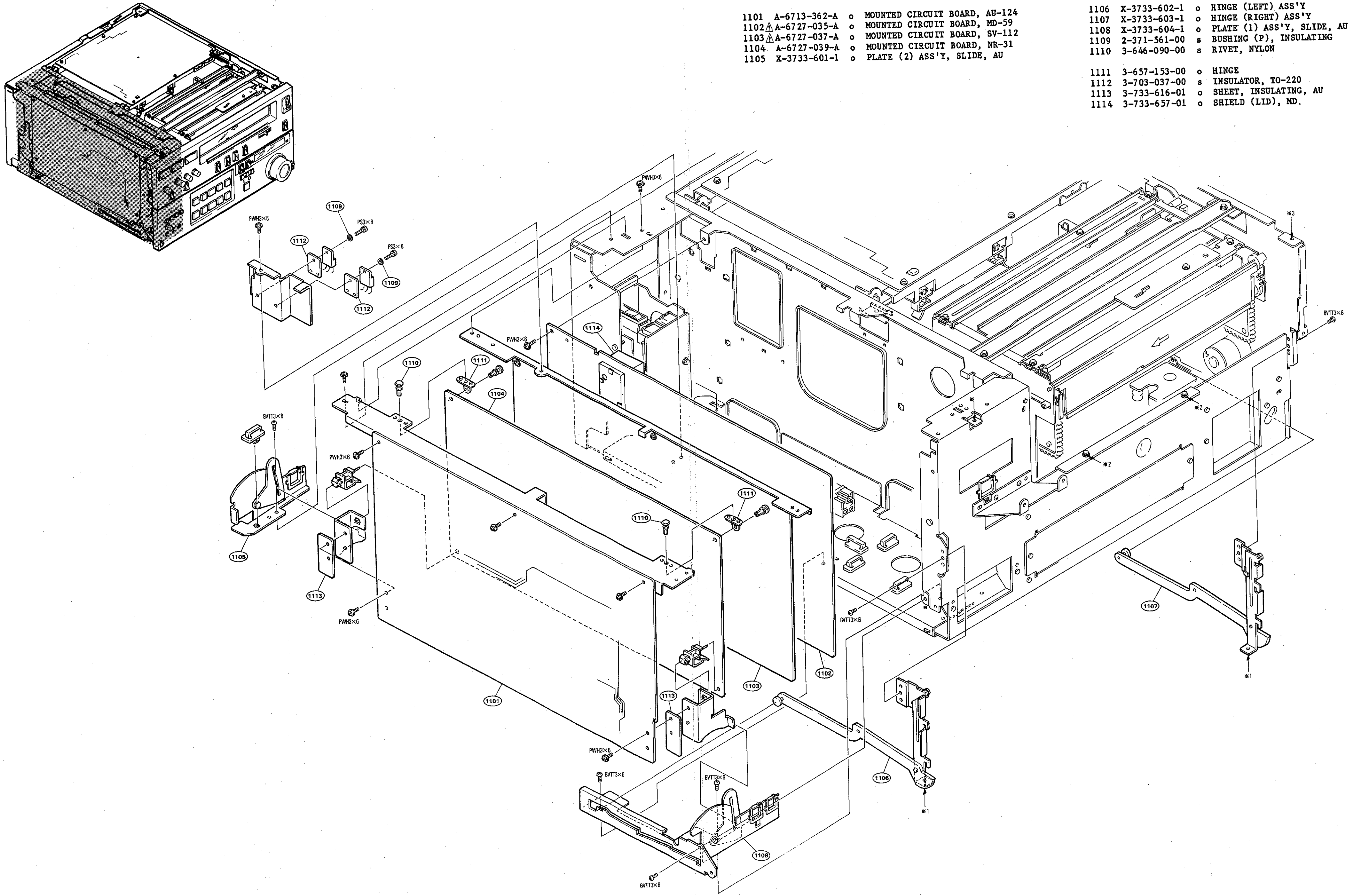
No.	Part No.	SP	Description
1001	A-6704-355-A	o	PANEL BLOCK ASS'Y, FRONT
1002	A-6704-356-A	o	PANEL BLOCK ASS'Y, KEY
1003	X-3661-073-0	s	KNOB ASS'Y, CONTROL
1004	X-3668-075-0	s	KNOB ASS'Y, CONTROL
1005	2-284-744-00	o	CUSHION (B), KEY
1006	3-668-008-02	s	PUSH BUTTON (3x5)
1007	3-668-009-02	s	PIN, PUSH BOTTON
1008	3-668-012-00	s	RUBBER, DIAL KNOB
1009	3-672-782-02	s	KEY TOP (A) "PLAY"
1010	3-672-782-11	s	KEY TOP (A) "REC"
1011	3-672-783-02	s	KEY TOP (B) "REW"
1012	3-672-783-12	s	KEY TOP (B) "F FWD"
1013	3-672-783-32	s	KEY TOP (B) "EJECT"
1014	3-672-783-42	s	KEY TOP (B) "STOP"
1015	3-672-783-52	s	KEY TOP (B) "PAUSE"
1016	3-717-370-01	o	KNOB, DIAL
1017	3-717-374-01	o	FRAME (23x12), ORNAMENTAL, SW
1018	3-717-375-01	o	FRAME (18x12), ORNAMENTAL, SW
1019	3-717-382-01	s	KNOB, LEVER SW
1020	3-717-557-01	o	PLATE, KNOB
1021	3-717-613-01	o	PLATE, ORNAMENTAL, LSW
1022	3-733-602-01	s	KEY TOP (S)
1023	3-733-603-01	s	KEY TOP
1024	3-733-604-02	s	KEY TOP (PC)
1025	3-733-605-01	s	COVER, LED
1026	3-733-606-01 (S/N 10001 through 10200)	s	PUSH BUTTON (5x9)
1026	3-733-606-02 (S/N 10201 and higher)	s	PUSH BUTTON (5x9)
1027	4-309-349-00	s	SPRING, COIL
1028	4-866-613-00	s	SPRING, COMPRESSION


1001
1021
PSW3×8
※3
※2
※4
1017
1019
1018
1004
1003
1002
1007
1027
※5
1025
1006
1005
1009 PLAY
1010 REC
1011 REW
1012 F-FWD
1013 EJECT
1014 STOP
1015 PAUSE
1024 PREROLL
EDIT
CUT OUT
1028
1026
1022
1023
1016
1020
1008

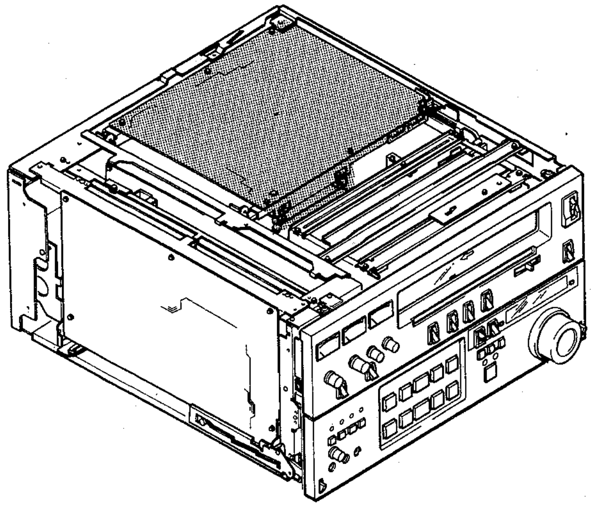
CHASSIS BLOCK (1), LEFT SIDE

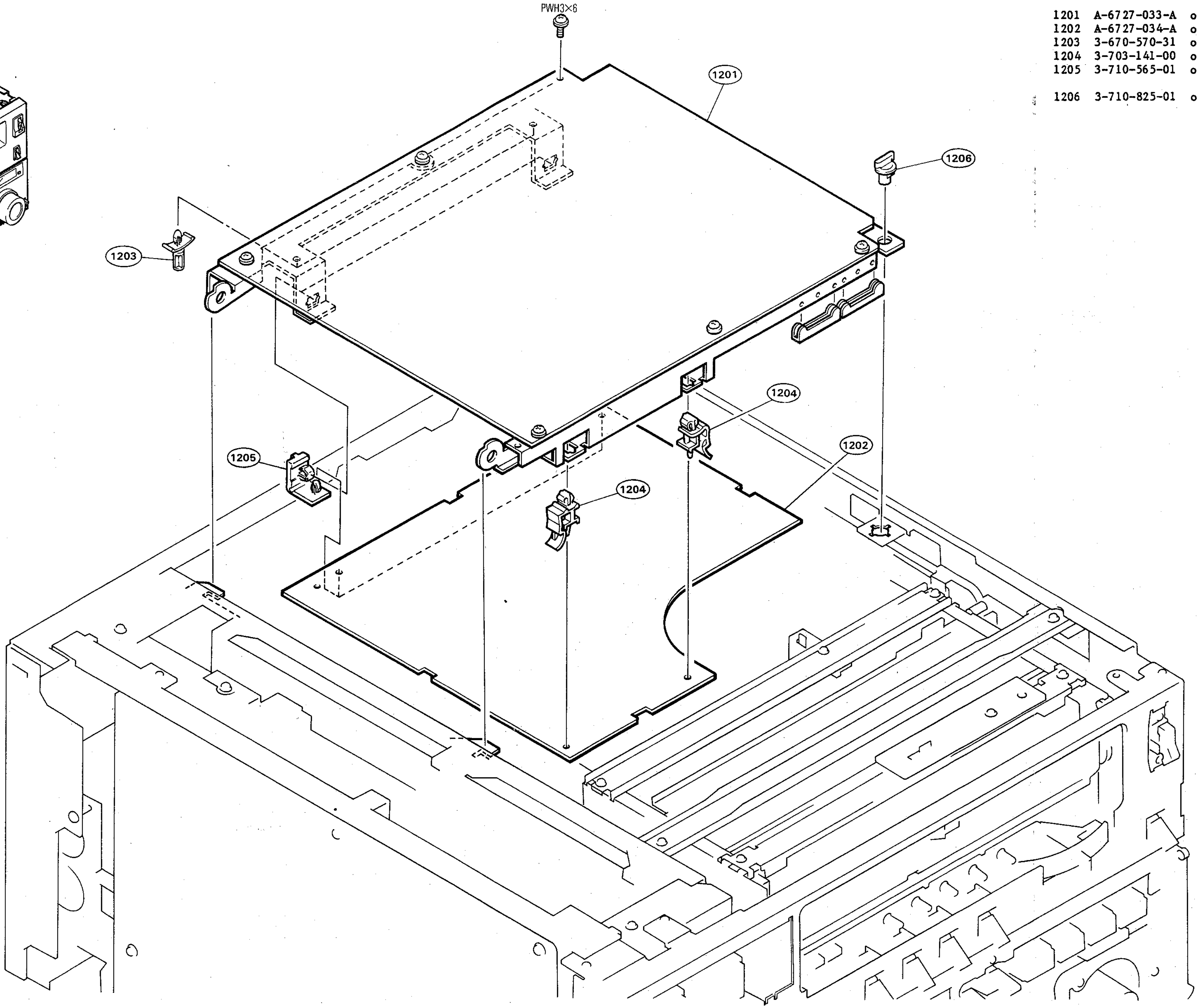
No.	Part No.	SP	Description
1101	A-6713-362-A	o	MOUNTED CIRCUIT BOARD, AU-124
1102⚠	A-6727-035-A	o	MOUNTED CIRCUIT BOARD, MD-59
1103⚠	A-6727-037-A	o	MOUNTED CIRCUIT BOARD, SV-112
1104	A-6727-039-A	o	MOUNTED CIRCUIT BOARD, NR-31
1105	X-3733-601-1	o	PLATE (2) ASS'Y, SLIDE, AU

No.	Part No.	SP	Description
1106	X-3733-602-1	o	HINGE (LEFT) ASS'Y
1107	X-3733-603-1	o	HINGE (RIGHT) ASS'Y
1108	X-3733-604-1	o	PLATE (1) ASS'Y, SLIDE, AU
1109	2-371-561-00	s	BUSHING (P), INSULATING
1110	3-646-090-00	s	RIVET, NYLON
1111	3-657-153-00	o	HINGE
1112	3-703-037-00	s	INSULATOR, TO-220
1113	3-733-616-01	o	SHEET, INSULATING, AU
1114	3-733-657-01	o	SHIELD (LID), MD.


1109
PS3×8
1112
PWH3×6
PS3×8
1109
1112
PWH3×6
1114
PWH3×6
1110
1111
1104
BVTT3×6
PWH3×6
1105
1113
PWH3×6
1111
1110
1101
1113
1103
1102
BVTT3×6
PWH3×6
BVTT3×6
BVTT3×6
1108
BVTT3×6
1106
✽1
1107
✽1
✽2
✽2
✽3
BVTT3×6

CHASSIS BLOCK (2), TOP

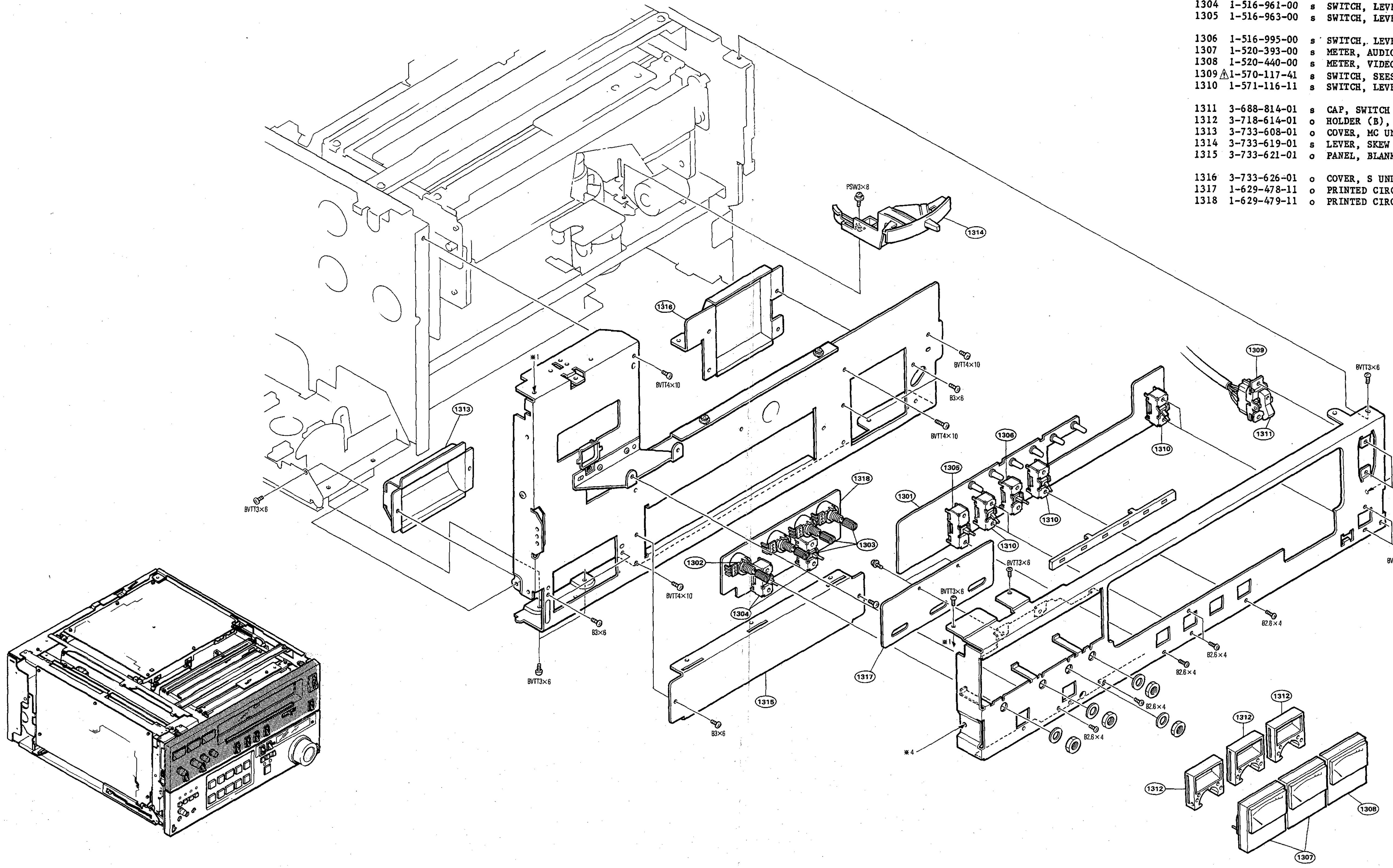



PWH3×6
1201
1206
1203
1204
1202
1205
1204

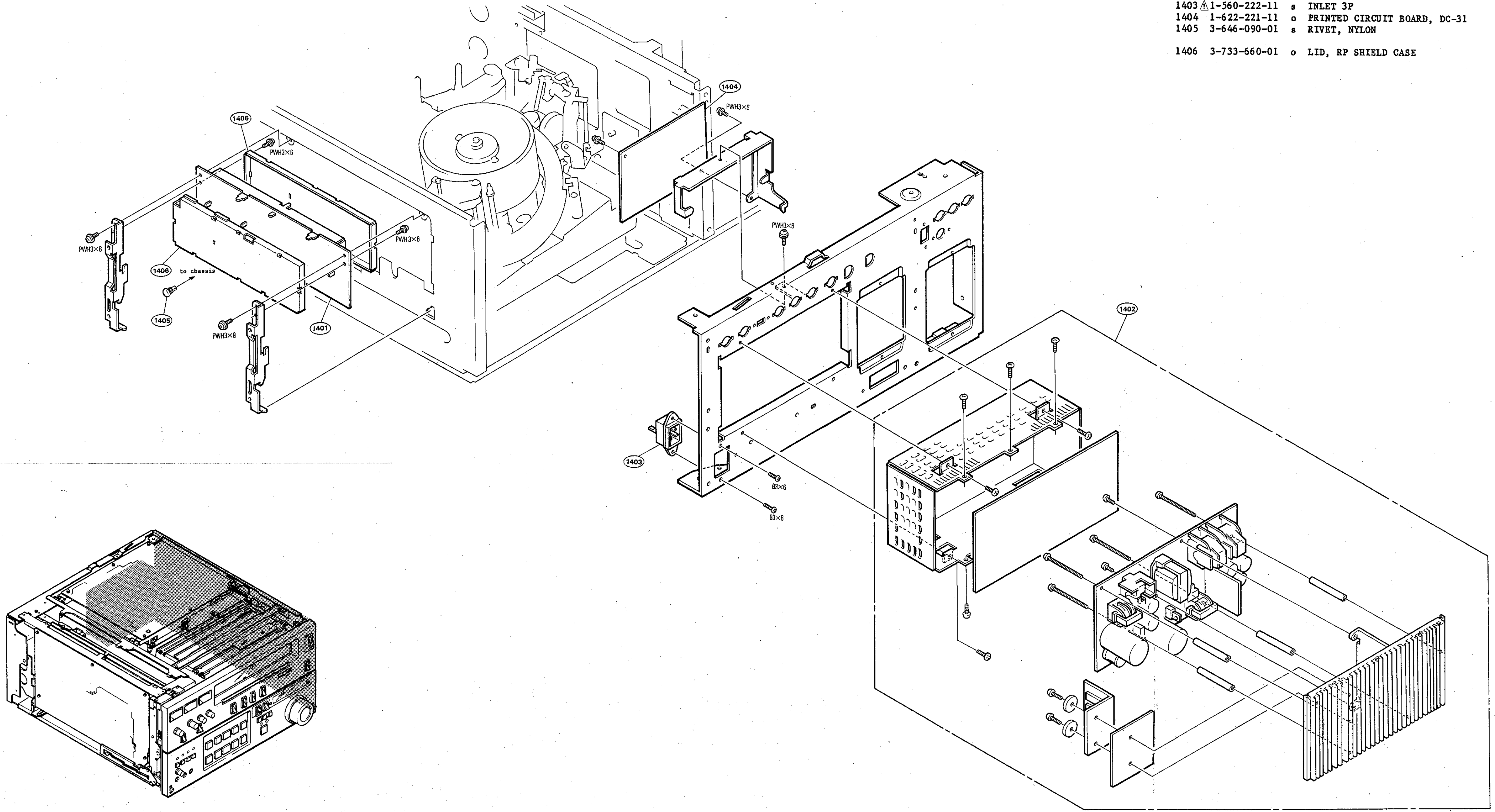
No.	Part No.	SP	Description
1201	A-6727-033-A	o	MOUNTED CIRCUIT BOARD, DM-69
1202	A-6727-034-A	o	MOUNTED CIRCUIT BOARD, DM-70
1203	3-670-570-31	o	SPACER, SUPPORT
1204	3-703-141-00	o	HOLDER, PCB
1205	3-710-565-01	o	HINGE, PC BOARD
1206	3-710-825-01	o	FASTENER, PLATE

LEVEL CONTROL

No.	Part No.	SP	Description
1301	A-6729-839-A	o	MOUNTED CIRCUIT BOARD, SW-315
1302	1-237-713-11	s	RES, VAR, CARBON 100K
1303	1-249-410-11	s	RES, CARBON (SMALL) 270
1304	1-516-961-00	s	SWITCH, LEVER SLIDE
1305	1-516-963-00	s	SWITCH, LEVER SLIDE
1306	1-516-995-00	s	SWITCH, LEVER SLIDE
1307	1-520-393-00	s	METER, AUDIO
1308	1-520-440-00	s	METER, VIDEO
1309 ⚠	1-570-117-41	s	SWITCH, SEESAW (AC POWER)
1310	1-571-116-11	s	SWITCH, LEVER SLIDE
1311	3-688-814-01	s	CAP, SWITCH
1312	3-718-614-01	o	HOLDER (B), LAMP
1313	3-733-608-01	o	COVER, MC UNDER
1314	3-733-619-01	s	LEVER, SKEW
1315	3-733-621-01	o	PANEL, BLANK
1316	3-733-626-01	o	COVER, S UNDER
1317	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
1318	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80


PSW3×8
1314
1316
BVTT4×10
BVTT4×10
B3×6
BVTT4×10
*1
1313
BVTT3×6
1318
1302
1303
1304
BVTT4×10
B3×6
BVTT3×6
1315
B3×6
1301
1305
1306
1310
1310
1310
BVTT3×6
BVTT3×6
*1
1317
1309
1311
BVTT3×6
*4
BVTT3×6
BVTT3×6
BVTT2.6×4
B2.6×4
B2.6×4
B2.6×4
B2.6×4
B2.6×4
*4
1312
1312
1312
1308
1307

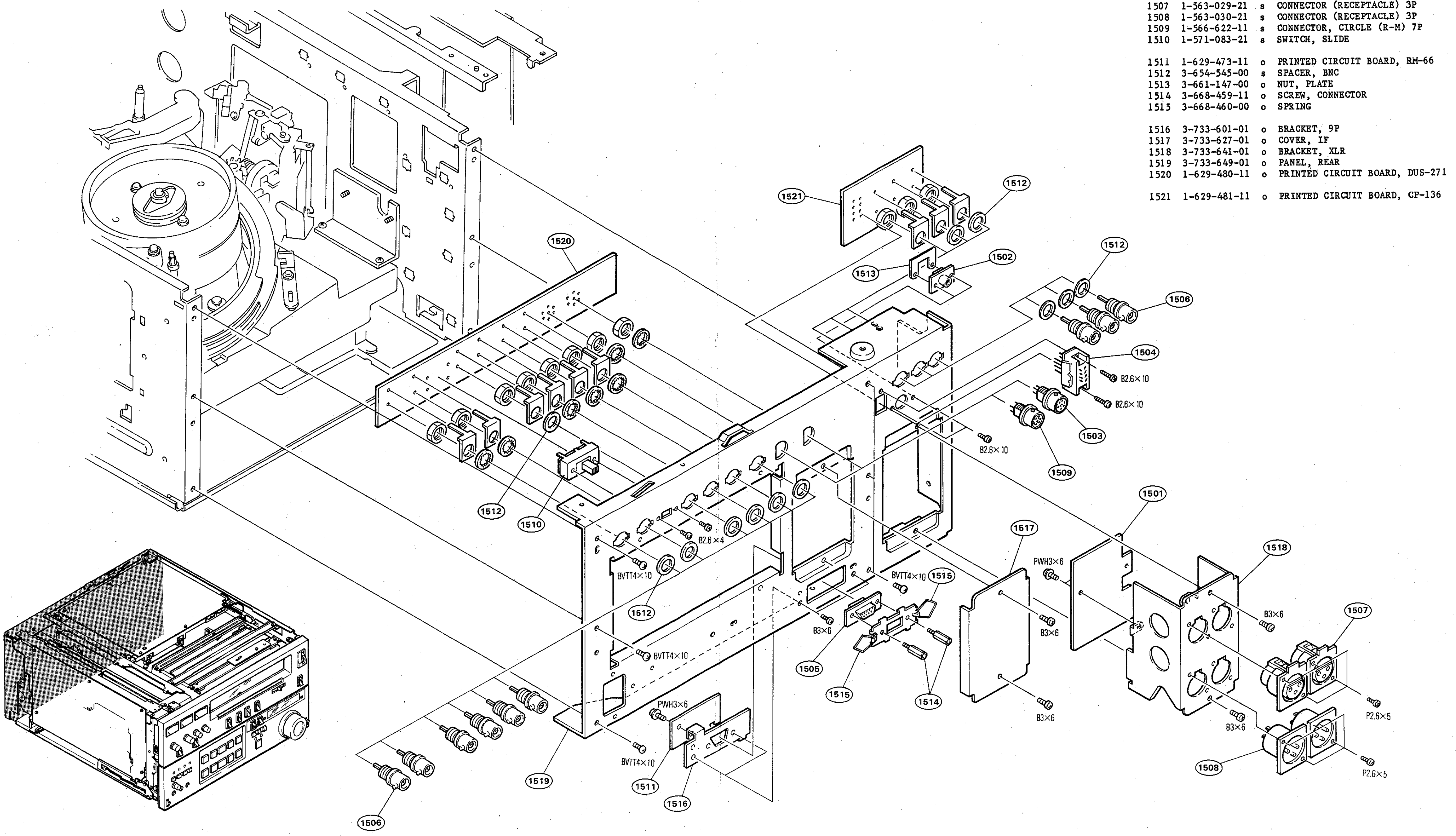
CHASSIS BLOCK (3), RIGHT SIDE AND REAR


1406
PWH3×6
1404
PWH3×6
PWH3×8
PWH3×6
1406
to chassis
1405
PWH3×8
1401
PWH3×6
1402
1403
B3×6
B3×6

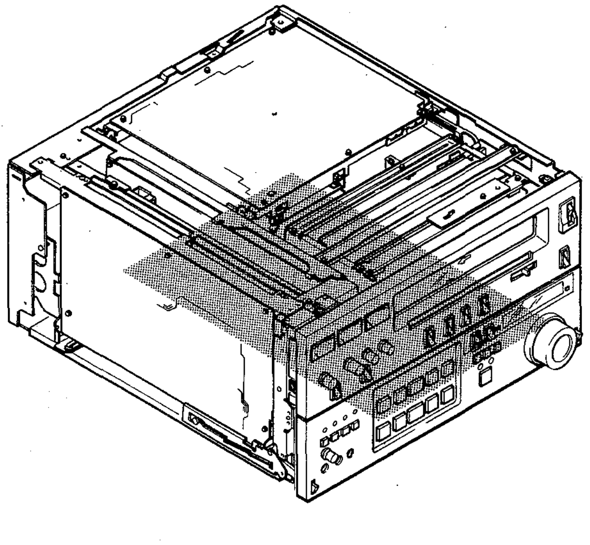
No.	Part No.	SP	Description
1401⚠	A-6727-036-A	o	MOUNTED CIRCUIT BOARD, RP-40
1402⚠	1-413-069-00	s	SWITCHING REGULATOR (UR-01)
1403⚠	1-560-222-11	s	INLET 3P
1404	1-622-221-11	o	PRINTED CIRCUIT BOARD, DC-31
1405	3-646-090-01	s	RIVET, NYLON
1406	3-733-660-01	o	LID, RP SHIELD CASE

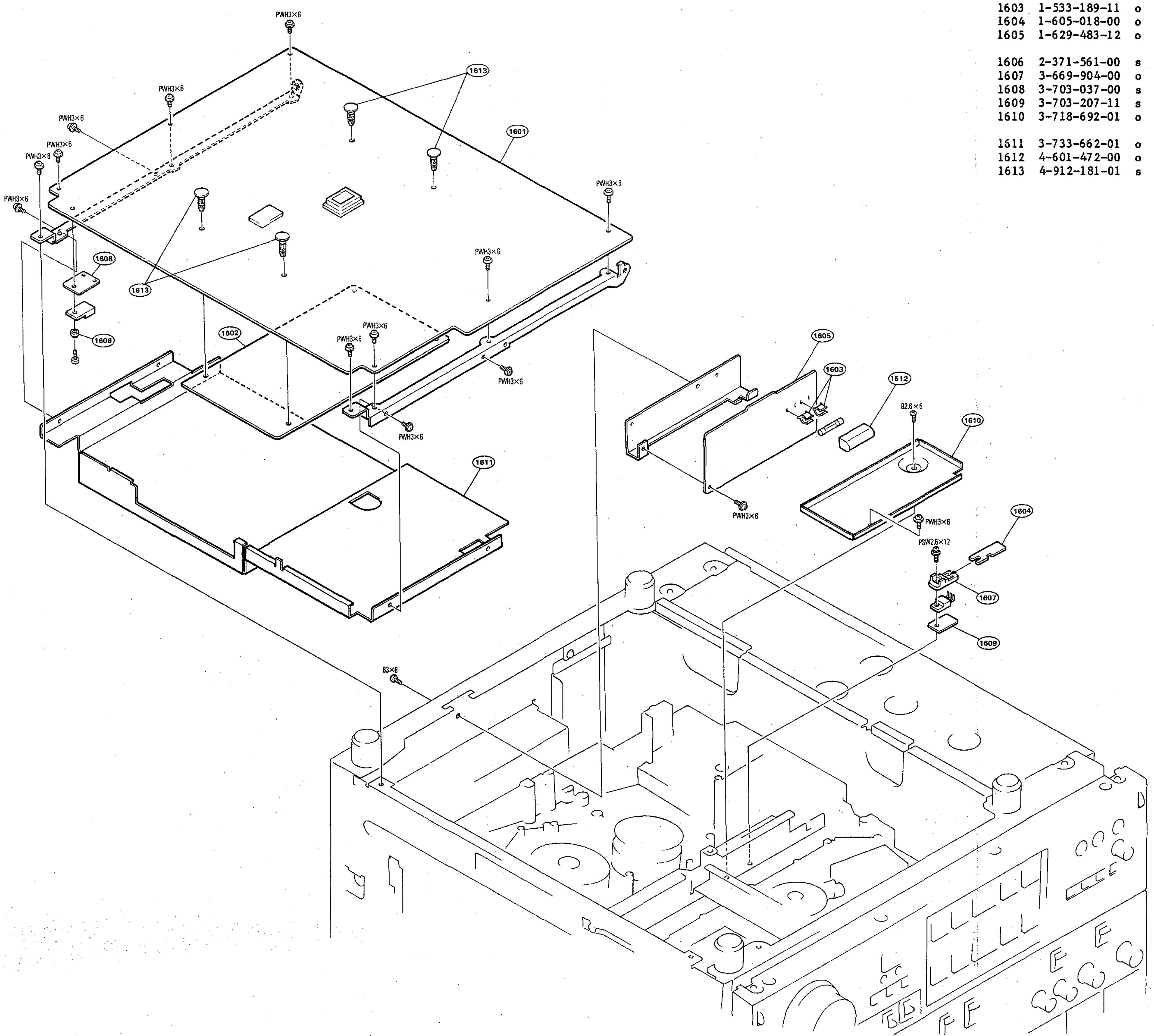
CONNECTOR PANEL

No.	Part No.	SP	Description
1501	A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
1502	1-507-467-00	s	1P PIN JACK
1503	1-561-045-00	s	CONNECTOR, (R-F)
1504	1-561-577-21	s	CONNECTOR (DIP TYPE) 8P
1505	1-561-655-00	s	CONNECTOR SOCKET, MINIATURE 9P
1506	1-562-227-21	s	RECEPTACLE, BNC
1507	1-563-029-21	s	CONNECTOR (RECEPTACLE) 3P
1508	1-563-030-21	s	CONNECTOR (RECEPTACLE) 3P
1509	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P
1510	1-571-083-21	s	SWITCH, SLIDE
1511	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1512	3-654-545-00	s	SPACER, BNC
1513	3-661-147-00	o	NUT, PLATE
1514	3-668-459-11	o	SCREW, CONNECTOR
1515	3-668-460-00	o	SPRING
1516	3-733-601-01	o	BRACKET, 9P
1517	3-733-627-01	o	COVER, IF
1518	3-733-641-01	o	BRACKET, XLR
1519	3-733-649-01	o	PANEL, REAR
1520	1-629-480-11	o	PRINTED CIRCUIT BOARD, DUS-271
1521	1-629-481-11	o	PRINTED CIRCUIT BOARD, CP-136


1521
1512
1520
1513
1502
1512
1506
1504
B2.6×10
B2.6×10
1503
B2.6×10
1509
1512
1510
B2.6×4
1501
1517
1518
BVTT4×10
1512
PWH3×6
BVTT4×10
1515
B3×6
B3×6
B3×6
1507
BVTT4×10
1505
1515
1514
B3×6
B3×6
P2.6×5
PWH3×6
BVTT4×10
1519
1511
1516
1508
P2.6×5
1506

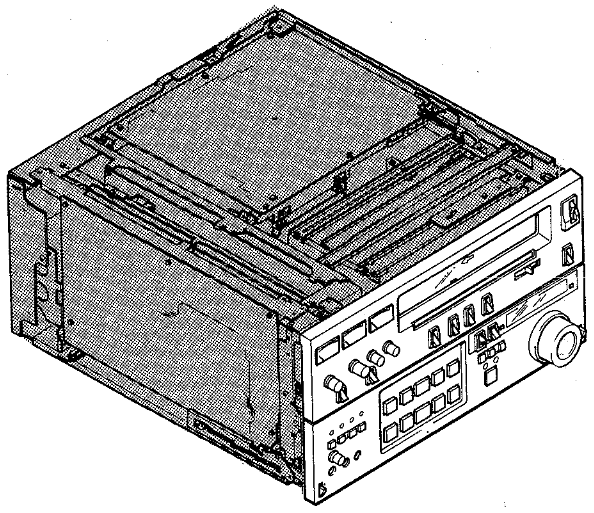
CHASSIS BLOCK (4), BOTTOM

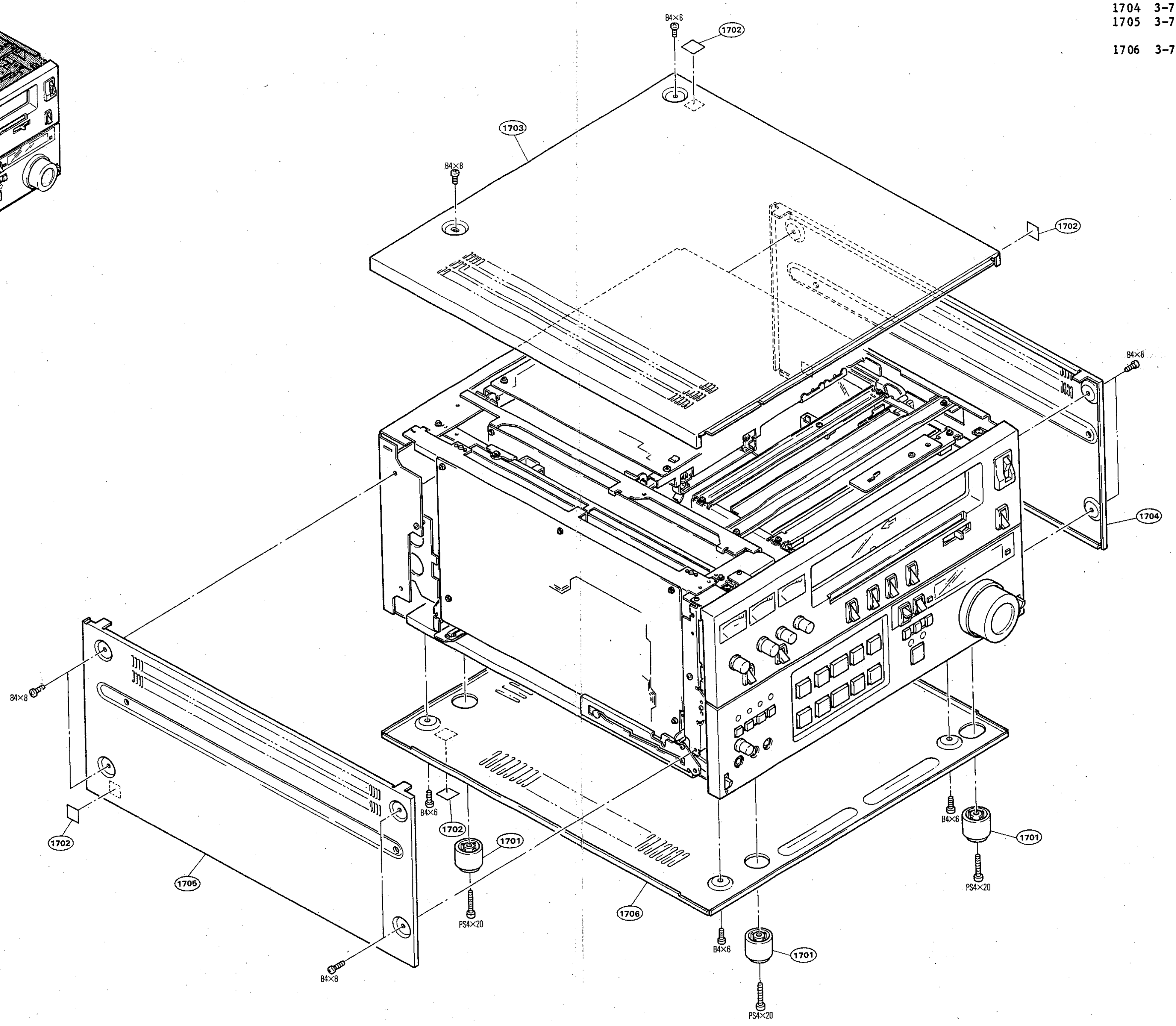



PWH3×6
PWH3×6
PWH3×6
PWH3×6
PWH3×6
PWH3×6
1613
1601
PWH3×6
1608
1613
PWH3×6
1606
1602
PWH3×6
PWH3×6
PWH3×6
PWH3×6
1611
1605
1603
1612
B2.6×5
1610
PWH3×6
PWH3×6
1604
PSW2.6×12
1607
1609
B3×6

No.	Part No.	SP	Description
1601⚠	A-6727-038-A	o	MOUNTED CIRCUIT BOARD, SY-141
1602	A-6727-040-A	o	MOUNTED CIRCUIT BOARD, BC-16
1603	1-533-189-11	o	HOLDER, FUSE
1604	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
1605	1-629-483-12	o	PRINTED CIRCUIT BOARD, AC-94
1606	2-371-561-00	s	BUSHING (P), INSULATING
1607	3-669-904-00	o	HOLDER, PT
1608	3-703-037-00	s	INSULATOR, TO-220
1609	3-703-207-11	s	INSULATOR, TO-220
1610	3-718-692-01	o	RETAINER, V HARNESS
1611	3-733-662-01	o	SHIELD, SY
1612	4-601-472-00	o	COVER, FUSE
1613	4-912-181-01	s	SUPPORT, PC

ORNAMENTAL PANEL




B4×8
1702
1703
B4×8
1702
B4×8
1704
B4×8
1702
1705
B4×8
B4×6
1702
1701
PS4×20
1706
B4×6
1701
PS4×20
B4×6
1701
PS4×20

No.	Part No.	SP	Description
1701	3-642-656-01	o	LEG
1702	3-703-848-01	o	LABEL (N), SUB CAUTION
1703	3-733-635-01	o	PANEL, TOP
1704	3-733-636-01	o	PANEL (RIGHT), SIDE
1705	3-733-637-01	o	PANEL (LEFT), SIDE
1706	3-733-638-01	o	PLATE, BOTTOM

16-3. ELECTRICAL PARTS LIST

CAPACITOR, MYLAR

Part No.	SP	Description
1-130-467-00	s	CAP, MYLAR 470pF 5% 50V
1-130-468-00	s	CAP, MYLAR 560pF 5% 50V
1-130-469-00	s	CAP, MYLAR 680pF 5% 50V
1-130-470-00	s	CAP, MYLAR 820pF 5% 50V
1-130-471-00	s	CAP, MYLAR 1000pF 5% 50V
1-130-472-00	s	CAP, MYLAR 1200pF 5% 50V
1-130-473-00	s	CAP, MYLAR 1500pF 5% 50V
1-130-474-00	s	CAP, MYLAR 1800pF 5% 50V
1-130-475-00	s	CAP, MYLAR 2200pF 5% 50V
1-130-476-00	s	CAP, MYLAR 2700pF 5% 50V
1-130-477-00	s	CAP, MYLAR 3300pF 5% 50V
1-130-478-00	s	CAP, MYLAR 3900pF 5% 50V
1-130-479-00	s	CAP, MYLAR 4700pF 5% 50V
1-130-480-00	s	CAP, MYLAR 5600pF 5% 50V
1-130-481-00	s	CAP, MYLAR 6800pF 5% 50V
1-130-482-00	s	CAP, MYLAR 8200pF 5% 50V
1-130-483-00	s	CAP, MYLAR 0.01 5% 50V
1-130-484-00	s	CAP, MYLAR 0.012 5% 50V
1-130-485-00	s	CAP, MYLAR 0.015 5% 50V
1-130-486-00	s	CAP, MYLAR 0.018 5% 50V
1-130-487-00	s	CAP, MYLAR 0.022 5% 50V
1-130-488-00	s	CAP, MYLAR 0.027 5% 50V
1-130-489-00	s	CAP, MYLAR 0.033 5% 50V
1-130-490-11	s	CAP, MYLAR 0.039 5% 50V
1-130-491-00	s	CAP, MYLAR 0.047 5% 50V
1-130-492-11	s	CAP, MYLAR 0.056 5% 50V
1-130-493-00	s	CAP, MYLAR 0.068 5% 50V
1-130-494-11	s	CAP, MYLAR 0.082 5% 50V
1-130-495-00	s	CAP, MYLAR 0.1 5% 50V
1-130-496-00	s	CAP, MYLAR 0.12 5% 50V
1-130-497-00	s	CAP, MYLAR 0.15 5% 50V
1-130-498-00	s	CAP, MYLAR 0.18 5% 50V
1-130-499-00	s	CAP, MYLAR 0.22 5% 50V
1-136-502-11	s	CAP, MYLAR 0.33 5% 50V

CAPACITOR, MICA, SILVERED

Part No.	SP	Description
1-107-019-00	s	CAP, MICA 1.0pF +-0.5pF 500V
1-107-039-00	s	CAP, MICA 1.2pF +-0.5pF 500V
1-107-040-00	s	CAP, MICA 1.5pF +-0.5pF 500V
1-107-041-00	s	CAP, MICA 1.8pF +-0.5pF 500V
1-107-042-00	s	CAP, MICA 2.2pF +-0.5pF 500V
1-107-043-00	s	CAP, MICA 2.7pF +-0.5pF 500V
1-107-044-00	s	CAP, MICA 3.3pF +-0.5pF 500V
1-107-045-00	s	CAP, MICA 3.9pF +-0.5pF 500V
1-107-046-00	s	CAP, MICA 4.7pF +-0.5pF 500V
1-107-026-00	s	CAP, MICA 5.1pF +-0.5pF 500V
1-107-047-00	s	CAP, MICA 5.6pF +-0.5pF 500V
1-107-048-00	s	CAP, MICA 6.8pF +-0.5pF 500V
1-107-049-00	s	CAP, MICA 8.2pF +-0.5pF 500V
1-107-202-00	s	CAP, MICA 10pF 5% 500V
1-107-203-00	s	CAP, MICA 11pF 5% 500V
1-107-204-00	s	CAP, MICA 12pF 5% 500V
1-107-205-00	s	CAP, MICA 13pF 5% 500V
1-107-206-00	s	CAP, MICA 15pF 5% 500V
1-107-207-00	s	CAP, MICA 16pF 5% 500V
1-107-208-00	s	CAP, MICA 18pF 5% 500V
1-107-209-00	s	CAP, MICA 20pF 5% 500V
1-107-210-00	s	CAP, MICA 22pF 5% 500V
1-107-211-00	s	CAP, MICA 24pF 5% 500V
1-107-157-00	s	CAP, MICA 27pF 5% 500V
1-107-158-00	s	CAP, MICA 30pF 5% 500V
1-107-159-00	s	CAP, MICA 33pF 5% 500V
1-107-074-00	s	CAP, MICA 36pF 5% 50V
1-107-075-00	s	CAP, MICA 39pF 5% 50V
1-107-076-00	s	CAP, MICA 43pF 5% 50V
1-107-077-00	s	CAP, MICA 47pF 5% 50V
1-107-164-00	s	CAP, MICA 51pF 5% 500V
1-107-165-00	s	CAP, MICA 56pF 5% 500V
1-107-166-00	s	CAP, MICA 62pF 5% 500V
1-107-036-00	s	CAP, MICA 68pF 5% 500V
1-107-167-00	s	CAP, MICA 75pF 5% 500V
1-107-083-00	s	CAP, MICA 82pF 5% 50V
1-107-084-00	s	CAP, MICA 91pF 5% 50V
1-107-085-00	s	CAP, MICA 100pF 5% 50V
1-107-086-00	s	CAP, MICA 110pF 5% 50V
1-107-087-00	s	CAP, MICA 120pF 5% 50V
1-109-538-00	s	CAP, MICA 130pF 5% 100V
1-109-539-00	s	CAP, MICA 150pF 5% 100V
1-107-090-00	s	CAP, MICA 160pF 5% 50V
1-109-540-00	s	CAP, MICA 180pF 5% 100V
1-109-541-00	s	CAP, MICA 200pF 5% 100V
1-109-542-00	s	CAP, MICA 220pF 5% 100V
1-109-545-00	s	CAP, MICA 270pF 5% 100V
1-109-547-00	s	CAP, MICA 330pF 5% 100V
1-109-549-00	s	CAP, MICA 390pF 5% 100V
1-109-633-00	s	CAP, MICA 470pF 2% 500V
1-109-555-00	s	CAP, MICA 560pF 5% 100V
1-109-635-00	s	CAP, MICA 470pF 2% 500V

RESISTOR, CARBON

Part No.	SP	Description
1-249-381-11	s	RES, CARBON 1.0 5% 1/4W
1-249-382-11	s	RES, CARBON 1.2 5% 1/4W
1-249-383-11	s	RES, CARBON 1.5 5% 1/4W
1-249-384-11	s	RES, CARBON 1.8 5% 1/4W
1-249-385-11	s	RES, CARBON 2.2 5% 1/4W
1-249-386-11	s	RES, CARBON 2.7 5% 1/4W
1-249-387-11	s	RES, CARBON 3.3 5% 1/4W
1-249-388-11	s	RES, CARBON 3.9 5% 1/4W
1-249-389-11	s	RES, CARBON 4.7 5% 1/4W
1-249-390-11	s	RES, CARBON 5.6 5% 1/4W
1-249-391-11	s	RES, CARBON 6.8 5% 1/4W
1-249-392-11	s	RES, CARBON 8.2 5% 1/4W
1-249-393-11	s	RES, CARBON 10 5% 1/4W
1-249-394-11	s	RES, CARBON 12 5% 1/4W
1-249-395-11	s	RES, CARBON 15 5% 1/4W
1-249-396-11	s	RES, CARBON 18 5% 1/4W
1-249-397-11	s	RES, CARBON 22 5% 1/4W
1-249-398-11	s	RES, CARBON 27 5% 1/4W
1-249-399-11	s	RES, CARBON 33 5% 1/4W
1-249-400-11	s	RES, CARBON 39 5% 1/4W
1-249-401-11	s	RES, CARBON 47 5% 1/4W
1-249-402-11	s	RES, CARBON 56 5% 1/4W
1-249-403-11	s	RES, CARBON 68 5% 1/4W
1-215-394-00	s	RES, METAL 75 1% 1/4W
1-249-404-11	s	RES, CARBON 82 5% 1/4W
1-249-405-11	s	RES, CARBON 100 5% 1/4W
1-249-406-11	s	RES, CARBON 120 5% 1/4W
1-249-407-11	s	RES, CARBON 150 5% 1/4W
1-249-408-11	s	RES, CARBON 180 5% 1/4W
1-249-409-11	s	RES, CARBON 220 5% 1/4W
1-249-410-11	s	RES, CARBON 270 5% 1/4W
1-249-411-11	s	RES, CARBON 330 5% 1/4W
1-249-412-11	s	RES, CARBON 390 5% 1/4W
1-249-413-11	s	RES, CARBON 470 5% 1/4W
1-249-414-11	s	RES, CARBON 560 5% 1/4W
1-249-415-11	s	RES, CARBON 680 5% 1/4W
1-249-416-11	s	RES, CARBON 820 5% 1/4W
1-249-417-11	s	RES, CARBON 1.0k 5% 1/4W
1-249-418-11	s	RES, CARBON 1.2k 5% 1/4W
1-249-419-11	s	RES, CARBON 1.5k 5% 1/4W
1-249-420-11	s	RES, CARBON 1.8k 5% 1/4W
1-249-421-11	s	RES, CARBON 2.2k 5% 1/4W
1-249-422-11	s	RES, CARBON 2.7k 5% 1/4W
1-249-423-11	s	RES, CARBON 3.3k 5% 1/4W
1-249-424-11	s	RES, CARBON 3.9k 5% 1/4W
1-249-425-11	s	RES, CARBON 4.7k 5% 1/4W
1-249-426-11	s	RES, CARBON 5.6k 5% 1/4W
1-249-427-11	s	RES, CARBON 6.8k 5% 1/4W
1-249-428-11	s	RES, CARBON 8.2k 5% 1/4W
1-249-429-11	s	RES, CARBON 10k 5% 1/4W
1-249-430-11	s	RES, CARBON 12k 5% 1/4W
1-249-431-11	s	RES, CARBON 15k 5% 1/4W
1-249-432-11	s	RES, CARBON 18k 5% 1/4W
1-249-433-11	s	RES, CARBON 22k 5% 1/4W
1-249-434-11	s	RES, CARBON 27k 5% 1/4W
1-249-435-11	s	RES, CARBON 33k 5% 1/4W
1-249-436-11	s	RES, CARBON 39k 5% 1/4W
1-249-437-11	s	RES, CARBON 47k 5% 1/4W
1-249-438-11	s	RES, CARBON 56k 5% 1/4W
1-249-439-11	s	RES, CARBON 68k 5% 1/4W

(RESISTOR, CARBON)

Part No.	SP	Description
1-249-440-11	s	RES, CARBON 82k 5% 1/4W
1-249-441-11	s	RES, CARBON 100k 5% 1/4W
1-215-471-00	s	RES, METAL 120k 1% 1/4W
1-215-473-00	s	RES, METAL 150k 1% 1/4W
1-215-475-00	s	RES, METAL 180k 1% 1/4W
1-215-477-00	s	RES, METAL 220k 1% 1/4W
1-215-479-00	s	RES, METAL 270k 1% 1/4W
1-215-481-00	s	RES, METAL 330k 1% 1/4W
1-215-483-00	s	RES, METAL 390k 1% 1/4W
1-215-485-00	s	RES, METAL 470k 1% 1/4W
1-215-487-00	s	RES, METAL 560k 1% 1/4W
1-215-489-00	s	RES, METAL 680k 1% 1/4W
1-215-491-00	s	RES, METAL 820k 1% 1/4W
1-215-493-00	s	RES, METAL 1.0M 1% 1/4W

RESISTOR, METAL

Part No.	SP	Description
1-215-373-31	s	RES, METAL 10 1% 1/6W
1-215-374-00	s	RES, METAL 11 1% 1/6W
1-215-375-00	s	RES, METAL 12 1% 1/6W
1-215-376-00	s	RES, METAL 13 1% 1/6W
1-215-377-00	s	RES, METAL 15 1% 1/6W
1-215-378-00	s	RES, METAL 16 1% 1/6W
1-215-379-00	s	RES, METAL 18 1% 1/6W
1-215-380-00	s	RES, METAL 20 1% 1/6W
1-215-381-00	s	RES, METAL 22 1% 1/6W
1-215-382-00	s	RES, METAL 24 1% 1/6W
1-215-383-00	s	RES, METAL 27 1% 1/6W
1-215-384-00	s	RES, METAL 30 1% 1/6W
1-215-385-00	s	RES, METAL 33 1% 1/6W
1-215-386-00	s	RES, METAL 36 1% 1/6W
1-215-387-00	s	RES, METAL 39 1% 1/6W
1-215-388-00	s	RES, METAL 43 1% 1/6W
1-215-389-00	s	RES, METAL 47 1% 1/6W
1-215-390-00	s	RES, METAL 51 1% 1/6W
1-215-391-00	s	RES, METAL 56 1% 1/6W
1-215-392-00	s	RES, METAL 62 1% 1/6W
1-215-393-00	s	RES, METAL 68 1% 1/6W
1-215-394-00	s	RES, METAL 75 1% 1/6W
1-215-395-00	s	RES, METAL 82 1% 1/6W
1-215-396-00	s	RES, METAL 91 1% 1/6W
1-215-397-00	s	RES, METAL 100 1% 1/6W
1-215-398-00	s	RES, METAL 110 1% 1/6W
1-215-399-00	s	RES, METAL 120 1% 1/6W
1-215-400-00	s	RES, METAL 130 1% 1/6W
1-215-401-00	s	RES, METAL 150 1% 1/6W
1-215-402-00	s	RES, METAL 160 1% 1/6W
1-215-403-00	s	RES, METAL 180 1% 1/6W
1-215-404-00	s	RES, METAL 200 1% 1/6W
1-215-405-00	s	RES, METAL 220 1% 1/6W
1-215-406-00	s	RES, METAL 240 1% 1/6W
1-215-407-00	s	RES, METAL 270 1% 1/6W
1-215-408-00	s	RES, METAL 300 1% 1/6W
1-215-409-00	s	RES, METAL 330 1% 1/6W
1-215-410-00	s	RES, METAL 360 1% 1/6W
1-215-411-00	s	RES, METAL 390 1% 1/6W
1-215-412-00	s	RES, METAL 430 1% 1/6W
1-215-413-00	s	RES, METAL 470 1% 1/6W
1-215-414-00	s	RES, METAL 510 1% 1/6W
1-215-415-00	s	RES, METAL 560 1% 1/6W
1-215-416-00	s	RES, METAL 620 1% 1/6W
1-215-417-00	s	RES, METAL 680 1% 1/6W
1-215-418-00	s	RES, METAL 750 1% 1/6W
1-215-419-00	s	RES, METAL 820 1% 1/6W
1-215-420-00	s	RES, METAL 910 1% 1/6W
1-215-421-00	s	RES, METAL 1.0k 1% 1/6W
1-215-422-00	s	RES, METAL 1.1k 1% 1/6W
1-215-423-00	s	RES, METAL 1.2k 1% 1/6W
1-215-424-00	s	RES, METAL 1.3k 1% 1/6W
1-215-425-00	s	RES, METAL 1.5k 1% 1/6W
1-215-426-00	s	RES, METAL 1.6k 1% 1/6W
1-215-427-00	s	RES, METAL 1.8k 1% 1/6W
1-215-428-00	s	RES, METAL 2.0k 1% 1/6W
1-215-429-00	s	RES, METAL 2.2k 1% 1/6W
1-215-430-00	s	RES, METAL 2.4k 1% 1/6W
1-215-431-00	s	RES, METAL 2.7k 1% 1/6W
1-215-432-00	s	RES, METAL 3.0k 1% 1/6W

(RESISTOR, METAL)

Part No.	SP	Description
1-215-433-00	s	RES, METAL 3.3k 1% 1/6W
1-215-434-00	s	RES, METAL 3.6k 1% 1/6W
1-215-435-00	s	RES, METAL 3.9k 1% 1/6W
1-215-436-00	s	RES, METAL 4.3k 1% 1/6W
1-215-437-00	s	RES, METAL 4.7k 1% 1/6W
1-215-438-00	s	RES, METAL 5.1k 1% 1/6W
1-215-439-00	s	RES, METAL 5.6k 1% 1/6W
1-215-440-00	s	RES, METAL 6.2k 1% 1/6W
1-215-441-00	s	RES, METAL 6.8k 1% 1/6W
1-215-442-00	s	RES, METAL 7.5k 1% 1/6W
1-215-443-00	s	RES, METAL 8.2k 1% 1/6W
1-215-444-00	s	RES, METAL 9.1k 1% 1/6W
1-215-445-00	s	RES, METAL 10k 1% 1/6W
1-215-446-00	s	RES, METAL 11k 1% 1/6W
1-215-447-00	s	RES, METAL 12k 1% 1/6W
1-215-448-00	s	RES, METAL 13k 1% 1/6W
1-215-449-00	s	RES, METAL 15k 1% 1/6W
1-215-450-00	s	RES, METAL 16k 1% 1/6W
1-215-451-00	s	RES, METAL 18k 1% 1/6W
1-215-452-00	s	RES, METAL 20k 1% 1/6W
1-215-453-00	s	RES, METAL 22k 1% 1/6W
1-215-454-00	s	RES, METAL 24k 1% 1/6W
1-215-455-00	s	RES, METAL 27k 1% 1/6W
1-215-456-00	s	RES, METAL 30k 1% 1/6W
1-215-457-00	s	RES, METAL 33k 1% 1/6W
1-215-458-00	s	RES, METAL 36k 1% 1/6W
1-215-459-00	s	RES, METAL 39k 1% 1/6W
1-215-460-00	s	RES, METAL 43k 1% 1/6W
1-215-461-00	s	RES, METAL 47k 1% 1/6W
1-215-462-00	s	RES, METAL 51k 1% 1/6W
1-215-463-00	s	RES, METAL 56k 1% 1/6W
1-215-464-00	s	RES, METAL 62k 1% 1/6W
1-215-465-00	s	RES, METAL 68k 1% 1/6W
1-215-466-00	s	RES, METAL 75k 1% 1/6W
1-215-467-00	s	RES, METAL 82k 1% 1/6W
1-215-468-00	s	RES, METAL 91k 1% 1/6W
1-215-469-00	s	RES, METAL 100k 1% 1/6W
1-215-470-00	s	RES, METAL 110k 1% 1/6W
1-215-471-00	s	RES, METAL 120k 1% 1/6W
1-215-472-00	s	RES, METAL 130k 1% 1/6W
1-215-473-00	s	RES, METAL 150k 1% 1/6W
1-215-474-00	s	RES, METAL 160k 1% 1/6W
1-215-475-00	s	RES, METAL 180k 1% 1/6W
1-215-476-00	s	RES, METAL 200k 1% 1/6W
1-215-477-00	s	RES, METAL 220k 1% 1/6W
1-215-478-00	s	RES, METAL 240k 1% 1/6W
1-215-479-00	s	RES, METAL 270k 1% 1/6W
1-215-480-00	s	RES, METAL 300k 1% 1/6W
1-215-481-00	s	RES, METAL 330k 1% 1/6W
1-215-482-00	s	RES, METAL 360k 1% 1/6W
1-215-483-00	s	RES, METAL 390k 1% 1/6W
1-215-484-00	s	RES, METAL 430k 1% 1/6W
1-215-485-00	s	RES, METAL 470k 1% 1/6W
1-215-486-00	s	RES, METAL 510k 1% 1/6W
1-215-487-00	s	RES, METAL 560k 1% 1/6W
1-215-488-00	s	RES, METAL 620k 1% 1/6W
1-215-489-00	s	RES, METAL 680k 1% 1/6W
1-215-490-00	s	RES, METAL 750k 1% 1/6W
1-215-491-00	s	RES, METAL 820k 1% 1/6W
1-215-492-00	s	RES, METAL 910k 1% 1/6W

(RESISTOR, METAL)

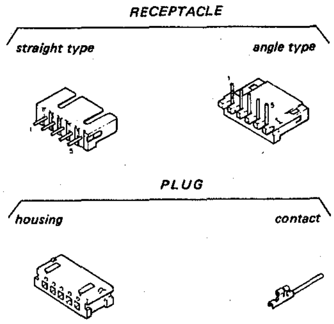
Part No.	SP	Description
1-215-493-00	s	RES, METAL 1.0M 1% 1/6W

CONNECTOR

Part No.	SP	Description	
1-506-467-11	o	RECEPTACLE	2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RECEPTACLE	2P MALE (ANGLE TYPE)
1-562-147-11	o	HOUSING	2P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-468-11	o	RECEPTACLE	3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RECEPTACLE	3P MALE (ANGLE TYPE)
1-562-148-11	o	HOUSING	3P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-469-11	o	RECEPTACLE	4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RECEPTACLE	4P MALE (ANGLE TYPE)
1-562-149-11	o	HOUSING	4P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-470-11	o	RECEPTACLE	5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RECEPTACLE	5P MALE (ANGLE TYPE)
1-562-150-11	o	HOUSING	5P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-471-31	o	RECEPTACLE	6P MALE (STRAIGHT TYPE)
1-506-485-11	o	RECEPTACLE	6P MALE (ANGLE TYPE)
1-562-151-11	o	HOUSING	6P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-472-11	o	RECEPTACLE	7P MALE (STRAIGHT TYPE)
1-506-486-11	o	RECEPTACLE	7P MALE (ANGLE TYPE)
1-562-152-11	o	HOUSING	7P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-473-11	o	RECEPTACLE	8P MALE (STRAIGHT TYPE)
1-506-487-11	o	RECEPTACLE	8P MALE (ANGLE TYPE)
1-562-153-11	o	HOUSING	8P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-474-11	o	RECEPTACLE	9P MALE (STRAIGHT TYPE)
1-506-488-11	o	RECEPTACLE	9P MALE (ANGLE TYPE)
1-562-154-11	o	HOUSING	9P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-475-11	o	RECEPTACLE	10P MALE (STRAIGHT TYPE)
1-506-489-11	o	RECEPTACLE	10P MALE (ANGLE TYPE)
1-562-155-11	o	HOUSING	10P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-476-11	o	RECEPTACLE	11P MALE (STRAIGHT TYPE)
1-506-490-21	o	RECEPTACLE	11P MALE (ANGLE TYPE)
1-562-156-11	o	HOUSING	11P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-477-11	o	RECEPTACLE	12P MALE (STRAIGHT TYPE)
1-506-491-11	o	RECEPTACLE	12P MALE (ANGLE TYPE)
1-562-157-11	o	HOUSING	12P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32
1-506-478-11	o	RECEPTACLE	13P MALE (STRAIGHT TYPE)
1-506-492-11	o	RECEPTACLE	13P MALE (ANGLE TYPE)
1-562-627-11	o	HOUSING	13P
1-563-088-11	o	CONTACT	AWG24-30
1-563-089-11	o	CONTACT	AWG32

(CONNECTOR)

Part No.	SP	Description
1-506-479-11	o	RECEPTACLE 14P MALE (STRAIGHT TYPE)
1-506-493-11	o	RECEPTACLE 14P MALE (ANGLE TYPE)
1-562-185-11	o	HOUSING 14P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32
1-506-480-11	o	RECEPTACLE 15P MALE (STRAIGHT TYPE)
1-506-494-11	o	RECEPTACLE 15P MALE (ANGLE TYPE)
1-562-958-11	o	HOUSING 15P
1-563-088-11	o	CONTACT AWG24-30
1-563-089-11	o	CONTACT AWG32



INDUCTOR, MICRO

Part No.	SP	Description
1-408-397-00	s	INDUCTOR, MICRO 1.0 5%
1-408-399-00	s	INDUCTOR, MICRO 1.5 5%
1-408-400-00	s	INDUCTOR, MICRO 1.8 5%
1-408-401-00	s	INDUCTOR, MICRO 2.2 5%
1-408-403-00	s	INDUCTOR, MICRO 3.3 5%
1-408-404-00	s	INDUCTOR, MICRO 3.9 5%
1-408-405-00	s	INDUCTOR, MICRO 4.7 5%
1-408-406-00	s	INDUCTOR, MICRO 5.6 5%
1-408-407-00	s	INDUCTOR, MICRO 6.8 5%
1-408-408-00	s	INDUCTOR, MICRO 8.2 5%
1-408-409-00	s	INDUCTOR, MICRO 10 5%
1-408-410-00	s	INDUCTOR, MICRO 12 5%
1-408-411-00	s	INDUCTOR, MICRO 15 5%
1-408-412-00	s	INDUCTOR, MICRO 18 5%
1-408-413-00	s	INDUCTOR, MICRO 22 5%
1-408-414-00	s	INDUCTOR, MICRO 27 5%
1-408-415-00	s	INDUCTOR, MICRO 33 5%
1-408-416-00	s	INDUCTOR, MICRO 39 5%
1-408-417-00	s	INDUCTOR, MICRO 47 5%
1-408-418-00	s	INDUCTOR, MICRO 56 5%
1-408-419-00	s	INDUCTOR, MICRO 68 5%
1-408-420-00	s	INDUCTOR, MICRO 82 5%
1-408-421-00	s	INDUCTOR, MICRO 100 5%
1-408-422-00	s	INDUCTOR, MICRO 120 5%
1-408-423-00	s	INDUCTOR, MICRO 150 5%
1-408-424-00	s	INDUCTOR, MICRO 180 5%
1-408-425-00	s	INDUCTOR, MICRO 220 5%
1-408-426-00	s	INDUCTOR, MICRO 270 5%
1-408-427-00	s	INDUCTOR, MICRO 330 5%
1-408-428-00	s	INDUCTOR, MICRO 390 5%
1-408-429-00	s	INDUCTOR, MICRO 470 5%
1-410-116-11	s	INDUCTOR, MICRO 560 5%
1-410-492-11	s	INDUCTOR, MICRO 680 5%
1-410-493-11	s	INDUCTOR, MICRO 820 5%
1-410-494-11	s	INDUCTOR, MICRO 1000 5%

AA-16 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-363-A	o	MOUNTED CIRCUIT BOARD, AA-16
C1	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C10	1-124-477-11	s	ELECT 47uF 20% 25V
C11	1-124-477-11	s	ELECT 47uF 20% 25V
C12	1-162-207-31	s	CERAMIC 22PF 5% 50V
C13	1-124-120-11	s	ELECT 220uF 20% 25V
C100	1-126-103-11	s	ELECT 470uF 20% 16V
C101	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C110	1-124-477-11	s	ELECT 47uF 20% 25V
C111	1-124-477-11	s	ELECT 47uF 20% 25V
C112	1-162-207-31	s	CERAMIC 22PF 5% 50V
C113	1-124-120-11	s	ELECT 220uF 20% 25V
C150	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D110	8-719-911-19	s	DIODE 1SS119
D111	8-719-911-19	s	DIODE 1SS119
D150	8-719-109-93	s	DIODE RD6.2ESB2
IC101	8-759-981-98	s	IC RC4560DD
PS1	1-532-727-11	s	LINK, IC 0.25A
Q10	8-729-306-92	s	TRANSISTOR 2SD669A
Q11	8-729-304-92	s	TRANSISTOR 2SB649A
Q12	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q110	8-729-306-92	s	TRANSISTOR 2SD669A
Q111	8-729-304-92	s	TRANSISTOR 2SB649A
Q112	8-729-201-05	s	TRANSISTOR 2SC2878-B
R1	1-247-826-00	s	CARBON 620 5% 1/4W
R18	1-247-727-11	s	CARBON 10 5% 1/2W
R19	1-247-727-11	s	CARBON 10 5% 1/2W
R101	1-247-826-00	s	CARBON 620 5% 1/4W
R118	1-247-727-11	s	CARBON 10 5% 1/2W
R119	1-247-727-11	s	CARBON 10 5% 1/2W
T1	1-423-261-11	s	TRANSFORMER, INPUT
T10	1-427-586-11	s	TRANSFORMER, INPUT/OUTPUT
T101	1-423-261-11	s	TRANSFORMER, INPUT
T110	1-427-586-11	s	TRANSFORMER, INPUT/OUTPUT

AC-94 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	1-533-189-11	o	HOLDER, FUSE
C1	⚠1-136-211-00	s	FILM 0.022uF 20% 250V
C2	⚠1-136-185-00	s	FILM 0.22uF 20% 250V
CN1	⚠1-506-371-00	o	CONNECTOR, 2P, MALE
L1	⚠1-421-556-21	s	TRANSFORMER, LINE FILTER
R1	1-214-945-00	s	METAL 2.2M 1% 1/2W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

AU-124 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-362-B	o	MOUNTED CIRCUIT BOARD, AU-124
2pcs	3-646-090-00	s	RIVET, NYLON
2pcs	3-657-153-00	o	HINGE
5pcs	7-682-903-11	s	SCREW +PWH 3X6
2pcs	3-733-616-01	o	SHEET, INSULATING, AU
C1	1-124-477-11	s	ELECT 47uF 20% 25V
C2	1-123-875-11	s	ELECT 10uF 20% 50V
C3	1-124-477-11	s	ELECT 47uF 20% 25V
C6	1-123-875-11	s	ELECT 10uF 20% 50V
C10	1-126-101-11	s	ELECT 100uF 20% 16V
C11	1-123-875-11	s	ELECT 10uF 20% 50V
C12	1-124-477-11	s	ELECT 47uF 20% 25V
C13	1-124-443-00	s	ELECT 100uF 20% 10V
C14	1-162-199-31	s	CERAMIC 10PF 5% 50V
C15	1-123-875-11	s	ELECT 10uF 20% 50V
C16	1-123-875-11	s	ELECT 10uF 20% 50V
C19	1-123-875-11	s	ELECT 10uF 20% 50V
C20	1-123-875-11	s	ELECT 10uF 20% 50V
C22	1-123-875-11	s	ELECT 10uF 20% 50V
C51	1-124-477-11	s	ELECT 47uF 20% 25V
C52	1-124-477-11	s	ELECT 47uF 20% 25V
C53	1-123-875-11	s	ELECT 10uF 20% 50V
C54	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C56	1-124-477-11	s	ELECT 47uF 20% 25V
C57	1-123-875-11	s	ELECT 10uF 20% 50V
C58	1-123-875-11	s	ELECT 10uF 20% 50V
C59	1-124-443-00	s	ELECT 100uF 20% 10V
C60	1-124-477-11	s	ELECT 47uF 20% 25V
C61	1-124-120-11	s	ELECT 220uF 20% 25V
C62	1-124-120-11	s	ELECT 220uF 20% 25V
C63	1-126-101-11	s	ELECT 100uF 20% 16V
C64	1-123-875-11	s	ELECT 10uF 20% 50V
C65	1-124-443-00	s	ELECT 100uF 20% 10V
C66	1-124-477-11	s	ELECT 47uF 20% 25V
C69	1-124-120-11	s	ELECT 220uF 20% 25V
C70	1-124-477-11	s	ELECT 47uF 20% 25V
C71	1-124-477-11	s	ELECT 47uF 20% 25V
C72	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C73	1-124-477-11	s	ELECT 47uF 20% 25V
C101	1-123-332-00	s	ELECT 47uF 20% 25V
C102	1-162-286-31	s	CERAMIC 220PF 10% 50V
C103	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C104	1-123-356-00	s	ELECT 10uF 20% 50V
C105	1-124-443-00	s	ELECT 100uF 20% 10V
C107	1-123-875-11	s	ELECT 10uF 20% 50V
C108	1-124-477-11	s	ELECT 47uF 20% 25V
C112	1-123-875-11	s	ELECT 10uF 20% 50V
C113	1-123-875-11	s	ELECT 10uF 20% 50V
C151	1-109-621-00	s	MICA 220PF 1% 500V
C152	1-162-290-31	s	CERAMIC 470PF 10% 50V
C153	1-123-875-11	s	ELECT 10uF 20% 50V
C154	1-123-875-11	s	ELECT 10uF 20% 50V
C155	1-123-332-00	s	ELECT 47uF 20% 25V
C156	1-123-875-11	s	ELECT 10uF 20% 50V
C158	1-123-875-11	s	ELECT 10uF 20% 50V
C159	1-123-875-11	s	ELECT 10uF 20% 50V
C162	1-162-219-31	s	CERAMIC 68PF 5% 50V
C163	1-123-875-11	s	ELECT 10uF 20% 50V
C201	1-123-875-11	s	ELECT 10uF 20% 50V

(AU-124 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C203	1-123-875-11	s	ELECT 10uF 20% 50V
C204	1-124-477-11	s	ELECT 47uF 20% 25V
C205	1-123-875-11	s	ELECT 10uF 20% 50V
C207	1-124-477-11	s	ELECT 47uF 20% 25V
C208	1-126-101-11	s	ELECT 100uF 20% 16V
C209	1-123-875-11	s	ELECT 10uF 20% 50V
C210	1-124-477-11	s	ELECT 47uF 20% 25V
C211	1-124-443-00	s	ELECT 100uF 20% 10V
C212	1-162-199-31	s	CERAMIC 10PF 5% 50V
C213	1-123-875-11	s	ELECT 10uF 20% 50V
C214	1-123-875-11	s	ELECT 10uF 20% 50V
C217	1-123-875-11	s	ELECT 10uF 20% 50V
C245	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C251	1-124-477-11	s	ELECT 47uF 20% 25V
C252	1-124-477-11	s	ELECT 47uF 20% 25V
C253	1-123-875-11	s	ELECT 10uF 20% 50V
C255	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C301	1-123-332-00	s	ELECT 47uF 20% 25V
C303	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C304	1-162-286-31	s	CERAMIC 220PF 10% 50V
C307	1-123-875-11	s	ELECT 10uF 20% 50V
C309	1-123-356-00	s	ELECT 10uF 20% 50V
C310	1-126-101-11	s	ELECT 100uF 20% 16V
C311	1-124-443-00	s	ELECT 100uF 20% 10V
C313	1-123-875-11	s	ELECT 10uF 20% 50V
C314	1-124-477-11	s	ELECT 47uF 20% 25V
C318	1-123-875-11	s	ELECT 10uF 20% 50V
C319	1-123-875-11	s	ELECT 10uF 20% 50V
C321	1-124-477-11	s	ELECT 47uF 20% 25V
C351	1-109-621-00	s	MICA 220PF 1% 500V
C352	1-162-290-31	s	CERAMIC 470PF 10% 50V
C353	1-123-875-11	s	ELECT 10uF 20% 50V
C354	1-123-875-11	s	ELECT 10uF 20% 50V
C355	1-123-332-00	s	ELECT 47uF 20% 25V
C356	1-123-875-11	s	ELECT 10uF 20% 50V
C358	1-123-875-11	s	ELECT 10uF 20% 50V
C361	1-162-219-31	s	CERAMIC 68PF 5% 50V
C362	1-123-875-11	s	ELECT 10uF 20% 50V
C363	1-123-875-11	s	ELECT 10uF 20% 50V
C401	1-123-875-11	s	ELECT 10uF 20% 50V
C402	1-123-875-11	s	ELECT 10uF 20% 50V
C403	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C404	1-124-925-11	s	ELECT 2.2uF 20% 100V
C451	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C452	1-123-875-11	s	ELECT 10uF 20% 50V
C453	1-123-875-11	s	ELECT 10uF 20% 50V
C501	1-126-101-11	s	ELECT 100uF 20% 16V
C502	1-126-233-11	s	ELECT 22uF 20% 50V
C503	1-124-477-11	s	ELECT 47uF 20% 25V
C504	1-124-360-00	s	ELECT 1000uF 20% 16V
C601	1-123-875-11	s	ELECT 10uF 20% 50V
C602	1-124-482-11	s	ELECT 33uF 20% 35V
C603	1-124-477-11	s	ELECT 47uF 20% 25V
C614	1-124-477-11	s	ELECT 47uF 20% 25V
C701	1-162-286-31	s	CERAMIC 220PF 10% 50V
C703	1-162-286-31	s	CERAMIC 220PF 10% 50V
C704	1-162-284-31	s	CERAMIC 150PF 10% 50V
C710	1-162-286-31	s	CERAMIC 220PF 10% 50V
C711	1-162-286-31	s	CERAMIC 220PF 10% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
C712	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C713	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C714	1-129-718-00	s	FILM 0.022uF 10% 630V
C715	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C716	1-131-367-00	s	TANTALUM 22uF 10% 20V
C719	1-162-286-31	s	CERAMIC 220PF 10% 50V
C721	1-162-286-31	s	CERAMIC 220PF 10% 50V
C722	1-162-284-31	s	CERAMIC 150PF 10% 50V
C728	1-162-286-31	s	CERAMIC 220PF 10% 50V
C729	1-162-286-31	s	CERAMIC 220PF 10% 50V
C730	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C731	1-129-718-00	s	FILM 0.022uF 10% 630V
C732	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C733	1-131-367-00	s	TANTALUM 22uF 10% 20V
C736	1-162-286-31	s	CERAMIC 220PF 10% 50V
C738	1-162-284-31	s	CERAMIC 150PF 10% 50V
C739	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C740	1-162-215-31	s	CERAMIC 47PF 5% 50V
C743	1-162-286-31	s	CERAMIC 220PF 10% 50V
C744	1-162-286-31	s	CERAMIC 220PF 10% 50V
C745	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C746	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C748	1-131-348-00	s	TANTALUM 1.5uF 10% 35V
C749	1-162-286-31	s	CERAMIC 220PF 10% 50V
C751	1-162-286-31	s	CERAMIC 220PF 10% 50V
C752	1-162-284-31	s	CERAMIC 150PF 10% 50V
C753	1-131-352-00	s	TANTALUM 6.8uF 10% 35V
C754	1-162-215-31	s	CERAMIC 47PF 5% 50V
C757	1-162-286-31	s	CERAMIC 220PF 10% 50V
C758	1-162-286-31	s	CERAMIC 220PF 10% 50V
C759	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C761	1-131-348-00	s	TANTALUM 1.5uF 10% 35V
C762	1-109-621-00	s	MICA 220PF 1% 500V
C763	1-109-621-00	s	MICA 220PF 1% 500V
C764	1-162-286-31	s	CERAMIC 220PF 10% 50V
C765	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C766	1-162-215-31	s	CERAMIC 47PF 5% 50V
C767	1-162-215-31	s	CERAMIC 47PF 5% 50V
C769	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C770	1-126-103-11	s	ELECT 470uF 20% 16V
C771	1-162-211-31	s	CERAMIC 33PF 5% 50V
C772	1-162-211-31	s	CERAMIC 33PF 5% 50V
C773	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C774	1-162-288-31	s	CERAMIC 330PF 10% 50V
C775	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C776	1-162-219-31	s	CERAMIC 68PF 5% 50V
C779	1-162-219-31	s	CERAMIC 68PF 5% 50V
CN202	1-506-471-11	s	CONNECTOR, 6P, MALE
CN206	1-506-471-11	o	CONNECTOR, 6P, MALE
CN209	1-506-471-11	o	CONNECTOR, 6P, MALE
CN218	1-506-471-11	o	CONNECTOR, 6P, MALE
CP601	1-464-805-11	s	OSCILLATOR, BIAS
D2	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D7	8-729-105-68	s	TRANSISTOR 2SC3356-K
D8	8-729-105-68	s	TRANSISTOR 2SC3356-K
D9	8-719-911-19	s	DIODE 1SS119

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Ref. No. or Q'ty	Part No.	SP	Description
D10	8-719-911-19	s	DIODE 1SS119
D51	8-719-911-19	s	DIODE 1SS119
D52	8-719-911-19	s	DIODE 1SS119
D53	8-719-911-19	s	DIODE 1SS119
D54	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-729-105-68	s	TRANSISTOR 2SC3356-K
D151	8-729-105-68	s	TRANSISTOR 2SC3356-K
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-729-105-68	s	TRANSISTOR 2SC3356-K
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119
D251	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D351	8-729-105-68	s	TRANSISTOR 2SC3356-K
D401	8-729-105-68	s	TRANSISTOR 2SC3356-K
D451	8-729-105-68	s	TRANSISTOR 2SC3356-K
D501	8-729-105-68	s	TRANSISTOR 2SC3356-K
D504	8-719-200-02	s	DIODE 10E2
D505	8-719-200-02	s	DIODE 10E2
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-109-51	s	DIODE RD2.0ES-B2
D508	8-719-911-19	s	DIODE 1SS119
D701	8-719-911-19	s	DIODE 1SS119
D702	8-719-911-19	s	DIODE 1SS119
D703	8-719-109-96	s	DIODE RD6.8ESB1
D704	8-719-109-88	s	DIODE RD5.6ESB1
IC1	8-759-982-02	s	IC RC4562DD
IC2	8-759-208-10	s	IC TC4053BPHB
IC3	8-759-982-02	s	IC RC4562DD
IC51	8-759-802-46	s	IC LA4550
IC101	8-759-981-57	s	IC RC2043DD
IC102	8-759-982-02	s	IC RC4562DD
IC151	8-759-981-90	s	IC RC4558DD
IC202	8-759-208-10	s	IC TC4053BPHB
IC351	8-759-981-90	s	IC RC4558DD
IC501	8-759-981-98	s	IC RC4560DD
IC502	8-759-981-98	s	IC RC4560DD
IC503	8-759-240-24	s	IC TC4024BP
IC504	8-759-240-69	s	IC TC4069UBP
L1	1-407-519-00	s	INDUCTOR 8uH
L201	1-407-519-00	s	INDUCTOR 8uH
L700	1-459-155-00	s	COIL 45uH
LV101	1-410-856-12	s	COIL, VAR 22mH
LV102	1-410-856-12	s	COIL, VAR 22mH
LV151	1-410-856-12	s	COIL, VAR 22mH
LV152	1-410-856-12	s	COIL, VAR 22mH
LV301	1-410-856-12	s	COIL, VAR 22mH
LV302	1-410-856-12	s	COIL, VAR 22mH
LV351	1-410-856-12	s	COIL, VAR 22mH
LV352	1-410-856-12	s	COIL, VAR 22mH
LV701	1-407-306-00	s	INDUCTOR, VAR 28mH

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

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Ref. No. or Q'ty	Part No.	SP	Description
LV702	1-407-306-00	s	INDUCTOR, VAR 28mH
LV703	1-407-306-00	s	INDUCTOR, VAR 28mH
LV704	1-407-300-00	s	INDUCTOR, VAR 7.1mH
LV705	1-407-306-00	s	INDUCTOR, VAR 28mH
LV706	1-407-300-00	s	INDUCTOR, VAR 7.1mH
Q3	8-729-178-54	s	TRANSISTOR 2SC2785
Q4	8-729-178-54	s	TRANSISTOR 2SC2785
Q5	8-729-178-54	s	TRANSISTOR 2SC2785
Q6	8-729-178-54	s	TRANSISTOR 2SC2785
Q7	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q8	8-729-178-54	s	TRANSISTOR 2SC2785
Q51	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q52	8-729-178-54	s	TRANSISTOR 2SC2785
Q53	8-729-178-54	s	TRANSISTOR 2SC2785
Q54	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q55	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q56	8-729-173-38	s	TRANSISTOR 2SA733-K
Q101	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q102	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q103	8-729-173-38	s	TRANSISTOR 2SA733-K
Q105	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q106	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q151	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q152	8-729-178-54	s	TRANSISTOR 2SC2785
Q153	8-729-178-54	s	TRANSISTOR 2SC2785
Q154	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-178-54	s	TRANSISTOR 2SC2785
Q202	8-729-178-54	s	TRANSISTOR 2SC2785
Q203	8-729-178-54	s	TRANSISTOR 2SC2785
Q204	8-729-178-54	s	TRANSISTOR 2SC2785
Q206	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q207	8-729-178-54	s	TRANSISTOR 2SC2785
Q208	8-729-178-54	s	TRANSISTOR 2SC2785
Q209	8-729-173-38	s	TRANSISTOR 2SA733-K
Q251	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q252	8-729-178-54	s	TRANSISTOR 2SC2785
Q301	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q302	8-729-178-55	s	TRANSISTOR 2SC2785-E
Q303	8-729-173-38	s	TRANSISTOR 2SA733-K
Q304	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q305	8-729-178-54	s	TRANSISTOR 2SC2785
Q306	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q351	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q352	8-729-178-54	s	TRANSISTOR 2SC2785
Q353	8-729-178-54	s	TRANSISTOR 2SC2785
Q354	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q401	8-729-178-54	s	TRANSISTOR 2SC2785
Q402	8-729-173-38	s	TRANSISTOR 2SA733-K
Q403	8-729-173-38	s	TRANSISTOR 2SA733-K
Q451	8-729-178-54	s	TRANSISTOR 2SC2785
Q452	8-729-173-38	s	TRANSISTOR 2SA733-K
Q501	8-729-178-54	s	TRANSISTOR 2SC2785
Q502	8-729-113-31	s	TRANSISTOR 2SB733-2
Q503	8-729-173-38	s	TRANSISTOR 2SA733-K
Q601	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q602	8-729-173-38	s	TRANSISTOR 2SA733-K
Q605	8-729-900-65	s	TRANSISTOR DTA144ES
Q608	8-729-177-32	s	TRANSISTOR 2SD773
Q701	8-729-178-54	s	TRANSISTOR 2SC2785

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Ref. No. or Q'ty	Part No.	SP	Description
Q705	8-729-173-38	s	TRANSISTOR 2SA733-K
Q706	8-729-178-54	s	TRANSISTOR 2SC2785
Q707	8-729-905-53	s	TRANSISTOR 2SD1055-R
Q708	8-729-982-22	s	TRANSISTOR 2SB822
Q709	8-729-173-38	s	TRANSISTOR 2SA733-K
Q710	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q711	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q712	8-729-178-54	s	TRANSISTOR 2SC2785
Q716	8-729-173-38	s	TRANSISTOR 2SA733-K
Q717	8-729-178-54	s	TRANSISTOR 2SC2785
Q718	8-729-905-53	s	TRANSISTOR 2SD1055-R
Q719	8-729-982-22	s	TRANSISTOR 2SB822
Q720	8-729-173-38	s	TRANSISTOR 2SA733-K
Q721	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q722	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q723	8-729-178-54	s	TRANSISTOR 2SC2785
Q724	8-729-173-38	s	TRANSISTOR 2SA733-K
Q725	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q726	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q727	8-729-178-54	s	TRANSISTOR 2SC2785
Q728	8-729-173-38	s	TRANSISTOR 2SA733-K
Q729	8-729-178-54	s	TRANSISTOR 2SC2785
Q730	8-729-905-53	s	TRANSISTOR 2SD1055-R
Q731	8-729-982-22	s	TRANSISTOR 2SB822
Q732	8-729-178-54	s	TRANSISTOR 2SC2785
Q733	8-729-173-38	s	TRANSISTOR 2SA733-K
Q734	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q735	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q736	8-729-178-54	s	TRANSISTOR 2SC2785
Q737	8-729-173-38	s	TRANSISTOR 2SA733-K
Q738	8-729-178-54	s	TRANSISTOR 2SC2785
Q739	8-729-905-53	s	TRANSISTOR 2SD1055-R
Q740	8-729-982-22	s	TRANSISTOR 2SB822
Q744	8-729-900-74	s	TRANSISTOR DTC143TS
Q745	8-729-900-74	s	TRANSISTOR DTC143TS
Q746	8-729-900-65	s	TRANSISTOR DTA144ES
R10	1-247-903-00	s	CARBON 1M 5% 1/4W
R19	1-247-887-00	s	CARBON 220K 5% 1/4W
R40	1-247-891-00	s	CARBON 330K 5% 1/4W
R117	1-247-887-00	s	CARBON 220K 5% 1/4W
R124	1-247-881-00	s	CARBON 120K 5% 1/4W
R126	1-247-881-00	s	CARBON 120K 5% 1/4W
R159	1-247-883-00	s	CARBON 150K 5% 1/4W
R204	1-247-891-00	s	CARBON 330K 5% 1/4W
R216	1-247-887-00	s	CARBON 220K 5% 1/4W
R316	1-247-903-00	s	CARBON 1M 5% 1/4W
R321	1-247-887-00	s	CARBON 220K 5% 1/4W
R327	1-247-881-00	s	CARBON 120K 5% 1/4W
R329	1-247-881-00	s	CARBON 120K 5% 1/4W
R359	1-247-883-00	s	CARBON 150K 5% 1/4W
R709	1-247-895-00	s	CARBON 470K 5% 1/4W
R712	1-247-903-00	s	CARBON 1M 5% 1/4W
R716	1-249-480-11	s	CARBON 3.3 5% 1/2W
R717	1-249-480-11	s	CARBON 3.3 5% 1/2W
R732	1-247-895-00	s	CARBON 470K 5% 1/4W
R741	1-249-480-11	s	CARBON 3.3 5% 1/2W
R742	1-249-480-11	s	CARBON 3.3 5% 1/2W
R758	1-247-887-00	s	CARBON 220K 5% 1/4W
R767	1-249-480-11	s	CARBON 3.3 5% 1/2W
R768	1-249-480-11	s	CARBON 3.3 5% 1/2W
R777	1-247-887-00	s	CARBON 220K 5% 1/4W
R787	1-249-480-11	s	CARBON 3.3 5% 1/2W
R788	1-249-480-11	s	CARBON 3.3 5% 1/2W
R799	1-247-895-00	s	CARBON 470K 5% 1/4W
R800	1-247-731-11	s	CARBON 22 5% 1/2W
R803	1-247-895-00	s	CARBON 470K 5% 1/4W
R804	1-247-731-11	s	CARBON 22 5% 1/2W
RV1	1-228-996-00	s	RES, ADJ, METAL 47K
RV51	1-228-990-00	s	RES, ADJ, METAL 1K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV103	1-228-994-00	s	RES, ADJ, METAL 10K
RV104	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV151	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV152	1-228-994-00	s	RES, ADJ, METAL 10K
RV153	1-228-998-00	s	RES, ADJ, METAL 220K
RV154	1-228-998-00	s	RES, ADJ, METAL 220K
RV201	1-228-996-00	s	RES, ADJ, METAL 47K
RV251	1-228-990-00	s	RES, ADJ, METAL 1K
RV301	1-228-994-00	s	RES, ADJ, METAL 10K
RV302	1-228-994-00	s	RES, ADJ, METAL 10K
RV303	1-228-994-00	s	RES, ADJ, METAL 10K
RV304	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV351	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV352	1-228-994-00	s	RES, ADJ, METAL 10K
RV353	1-228-998-00	s	RES, ADJ, METAL 220K
RV354	1-228-998-00	s	RES, ADJ, METAL 220K
RV401	1-228-998-00	s	RES, ADJ, METAL 220K
RV402	1-228-998-00	s	RES, ADJ, METAL 220K
RV403	1-228-998-00	s	RES, ADJ, METAL 220K
RV404	1-228-999-00	s	RES, ADJ, METAL 470K
RV405	1-228-998-00	s	RES, ADJ, METAL 220K
RV406	1-228-999-00	s	RES, ADJ, METAL 470K
RV604	1-228-994-00	s	RES, ADJ, METAL 10K
X301	1-567-875-11	s	RESONATOR, CERAMIC 2.27MHz

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

BC-16 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-040-A	o	MOUNTED CIRCUIT BOARD, BC-16
C401	1-124-443-00	s	ELECT 100uF 20% 10V
C402	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C403	1-162-210-31	s	CERAMIC 30PF 5% 50V
C404	1-162-210-31	s	CERAMIC 30PF 5% 50V
C405	1-162-292-31	s	CERAMIC 680PF 10% 50V
C406	1-124-443-00	s	ELECT 100uF 20% 10V
C407	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C408	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
IC401	8-759-944-64	s	IC MB88525-179M
IC402	8-759-240-69	s	IC TC4069UBP
IC403	8-759-240-69	s	IC TC4069UBP
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q403	8-729-900-89	s	TRANSISTOR DTC144ES
Q404	8-729-900-89	s	TRANSISTOR DTC144ES
Q405	8-729-900-89	s	TRANSISTOR DTC144ES
Q406	8-729-900-89	s	TRANSISTOR DTC144ES
Q408	8-729-900-89	s	TRANSISTOR DTC144ES
Q409	8-729-900-89	s	TRANSISTOR DTC144ES
Q410	8-729-900-89	s	TRANSISTOR DTC144ES
Q413	8-729-119-78	s	TRANSISTOR 2SC2785
Q417	8-729-900-89	s	TRANSISTOR DTC144ES
Q418	8-729-900-89	s	TRANSISTOR DTC144ES
Q425	8-729-900-89	s	TRANSISTOR DTC144ES
Q426	8-729-900-89	s	TRANSISTOR DTC144ES
R430	1-247-903-00	s	CARBON 1M 5% 1/4W
X401	1-567-143-00	s	RESONATOR, CERAMIC 6.00MHz

CC-36 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-627-572-12	o	PRINTED CIRCUIT BOARD, CC-36
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
R1	1-247-705-11	s	CARBON 270 5% 1/4W
R2	1-247-717-11	s	CARBON 2.2K 5% 1/4W
R3	1-247-705-11	s	CARBON 270 5% 1/4W
R4	1-247-717-11	s	CARBON 2.2K 5% 1/4W

CC-37 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-627-573-12	o	PRINTED CIRCUIT BOARD, CC-37
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "CASSETTE IN DET"

CP-136 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-481-11	o	PRINTED CIRCUIT BOARD, CP-136

DC-31D BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-561-432-00	o	CONTACT, FEMALE
1pc	1-561-424-11	o	HOUSING, 5P
1pc	1-622-221-11	o	PRINTED CIRCUIT BOARD, DC-31
6pcs	1-533-189-11	o	HOLDER, FUSE
C1	1-124-479-11	s	ELECT 330uF 20% 25V
C2	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
IC1	8-759-938-15	s	IC BA178M05

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

DM-69 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-033-A	o	MOUNTED CIRCUIT BOARD, DM-69
2pcs	3-646-090-00	s	RIVET, NYLON
2pcs	3-703-141-00	o	HOLDER, PCB
6pcs	7-682-903-11	s	SCREW +PWH 3X6
2pcs	3-710-565-01	o	HINGE, PRINTED CIRCUIT BOARD
2pcs	3-670-570-31	o	SPACER, SUPPORT
C1	1-161-494-00	s	CERAMIC 0.022uF 25V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C4	1-124-589-11	s	ELECT 47uF 20% 16V
C5	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C8	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C11	1-161-494-00	s	CERAMIC 0.022uF 25V
C16	1-161-494-00	s	CERAMIC 0.022uF 25V
C20	1-124-589-11	s	ELECT 47uF 20% 16V
C21	1-161-494-00	s	CERAMIC 0.022uF 25V
C25	1-124-589-11	s	ELECT 47uF 20% 16V
C28	1-161-494-00	s	CERAMIC 0.022uF 25V
C29	1-161-494-00	s	CERAMIC 0.022uF 25V
C31	1-124-589-11	s	ELECT 47uF 20% 16V
C32	1-161-494-00	s	CERAMIC 0.022uF 25V
C33	1-161-494-00	s	CERAMIC 0.022uF 25V
C35	1-161-494-00	s	CERAMIC 0.022uF 25V
C36	1-124-589-11	s	ELECT 47uF 20% 16V
C39	1-161-494-00	s	CERAMIC 0.022uF 25V
C45	1-162-217-31	s	CERAMIC 56PF 5% 50V
C47	1-162-217-31	s	CERAMIC 56PF 5% 50V
C51	1-124-584-00	s	ELECT 100uF 20% 10V
C54	1-162-215-31	s	CERAMIC 47PF 5% 50V
C55	1-161-494-00	s	CERAMIC 0.022uF 25V
C56	1-126-176-11	s	ELECT 220uF 20% 10V
C58	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C59	1-126-103-11	s	ELECT 470uF 20% 16V
C60	1-124-589-11	s	ELECT 47uF 20% 16V
C61	1-161-494-00	s	CERAMIC 0.022uF 25V
C64	1-161-494-00	s	CERAMIC 0.022uF 25V
C65	1-124-604-00	s	ELECT 330uF 20% 10V
C66	1-126-176-11	s	ELECT 220uF 20% 10V
C68	1-161-494-00	s	CERAMIC 0.022uF 25V
C69	1-124-589-11	s	ELECT 47uF 20% 16V
C70	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C71	1-124-584-00	s	ELECT 100uF 20% 10V
C73	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C74	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C75	1-126-157-11	s	ELECT 10uF 20% 16V
C76	1-124-257-00	s	ELECT 2.2uF 20% 50V
C77	1-124-584-00	s	ELECT 100uF 20% 10V
C78	1-161-494-00	s	CERAMIC 0.022uF 25V
C79	1-124-589-11	s	ELECT 47uF 20% 16V
C80	1-124-584-00	s	ELECT 100uF 20% 10V
C81	1-124-589-11	s	ELECT 47uF 20% 16V
C82	1-161-494-00	s	CERAMIC 0.022uF 25V
C83	1-124-584-00	s	ELECT 100uF 20% 10V
C86	1-126-176-11	s	ELECT 220uF 20% 10V
C88	1-124-584-00	s	ELECT 100uF 20% 10V
C89	1-124-589-11	s	ELECT 47uF 20% 16V
C90	1-124-589-11	s	ELECT 47uF 20% 16V
C93	1-126-176-11	s	ELECT 220uF 20% 10V

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C94	1-161-494-00	s	CERAMIC 0.022uF 25V
C97	1-124-360-00	s	ELECT 1000uF 20% 16V
C98	1-124-360-00	s	ELECT 1000uF 20% 16V
C99	1-161-494-00	s	CERAMIC 0.022uF 25V
C100	1-162-286-31	s	CERAMIC 220PF 10% 50V
C101	1-162-286-31	s	CERAMIC 220PF 10% 50V
C102	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C108	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C111	1-124-589-11	s	ELECT 47uF 20% 16V
C112	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C113	1-124-589-11	s	ELECT 47uF 20% 16V
C115	1-126-157-11	s	ELECT 10uF 20% 16V
C116	1-126-157-11	s	ELECT 10uF 20% 16V
C201	1-126-160-11	s	ELECT 1uF 20% 50V
C205	1-124-589-11	s	ELECT 47uF 20% 16V
C206	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C207	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C208	1-124-589-11	s	ELECT 47uF 20% 16V
C209	1-124-589-11	s	ELECT 47uF 20% 16V
C210	1-124-589-11	s	ELECT 47uF 20% 16V
C211	1-124-589-11	s	ELECT 47uF 20% 16V
C212	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C213	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C214	1-124-589-11	s	ELECT 47uF 20% 16V
C215	1-124-589-11	s	ELECT 47uF 20% 16V
C254	1-161-494-00	s	CERAMIC 0.022uF 25V
C301	1-126-103-11	s	ELECT 470uF 20% 16V
C302	1-161-494-00	s	CERAMIC 0.022uF 25V
C303	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C304	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C305	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C307	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C309	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C312	1-126-160-11	s	ELECT 1uF 20% 50V
C314	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C401	1-124-589-11	s	ELECT 47uF 20% 16V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C403	1-124-584-00	s	ELECT 100uF 20% 10V
C404	1-124-589-11	s	ELECT 47uF 20% 16V
C405	1-124-589-11	s	ELECT 47uF 20% 16V
C406	1-161-494-00	s	CERAMIC 0.022uF 25V
C408	1-126-157-11	s	ELECT 10uF 20% 16V
C411	1-124-589-11	s	ELECT 47uF 20% 16V
C412	1-124-589-11	s	ELECT 47uF 20% 16V
C413	1-124-589-11	s	ELECT 47uF 20% 16V
C414	1-161-494-00	s	CERAMIC 0.022uF 25V
C415	1-124-584-00	s	ELECT 100uF 20% 10V
C416	1-124-589-11	s	ELECT 47uF 20% 16V
C417	1-124-584-00	s	ELECT 100uF 20% 10V
C418	1-124-589-11	s	ELECT 47uF 20% 16V
C426	1-124-893-11	s	ELECT 2200uF 20% 10V
C427	1-124-473-11	s	ELECT 1000uF 20% 10V
C428	1-124-473-11	s	ELECT 1000uF 20% 10V
C501	1-124-589-11	s	ELECT 47uF 20% 16V
C502	1-161-494-00	s	CERAMIC 0.022uF 25V
C511	1-126-160-11	s	ELECT 1uF 20% 50V
C512	1-124-257-00	s	ELECT 2.2uF 20% 50V
C513	1-126-157-11	s	ELECT 10uF 20% 16V
C516	1-126-157-11	s	ELECT 10uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C517	1-124-257-00	s	ELECT 2.2uF 20% 50V
C518	1-126-157-11	s	ELECT 10uF 20% 16V
C520	1-124-589-11	s	ELECT 47uF 20% 16V
C521	1-161-494-00	s	CERAMIC 0.022uF 25V
CN101	1-506-471-11	s	CONNECTOR, 6P, MALE
CN111	1-506-471-11	s	CONNECTOR, 6P, MALE
CV1	1-141-245-00	s	CAP, TRIMMER 30PF
CV2	1-141-227-00	s	CAP, TRIMMER 20PF
CV3	1-141-227-00	s	CAP, TRIMMER 20PF
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D8	8-719-109-44	s	DIODE 1SS99-1
D9	8-719-109-44	s	DIODE 1SS99-1
D10	8-719-109-52	s	DIODE RD2.2ES-B
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D201	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D251	8-719-911-19	s	DIODE 1SS119
D252	8-719-911-19	s	DIODE 1SS119
D301	8-719-101-97	s	DIODE 1SS97-1
D302	8-719-101-97	s	DIODE 1SS97-1
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
DL1	1-415-162-21	s	DELAY LINE 50nS
DL2	1-415-154-00	s	DELAY LINE 35nS
FL1	1-235-623-11	s	FILTER, HIGH-PASS
FL2	1-231-581-21	s	FILTER, HIGH-PASS
FL3	1-236-039-11	s	FILTER, LOW-PASS
FL4	1-236-037-11	s	FILTER, LOW-PASS
FL201	1-235-474-11	s	FILTER, LOW-PASS
FL501	1-235-617-11	s	FILTER, LOW-PASS
IC1	8-751-340-10	s	IC CX134A
IC3	8-741-114-00	s	IC BX1140
IC4	8-751-350-10	s	IC CX135
IC5	8-759-208-10	s	IC TC4053BPHB
IC7	8-759-982-21	s	IC RC78L05A
IC9	8-759-981-91	s	IC RC4558DQ
IC10	8-752-006-12	s	IC CX20061
IC11	8-759-400-06	s	IC AN608P
IC12	8-749-900-94	s	IC BX1472
IC13	8-759-200-60	s	IC TA7060AP
IC14	8-752-006-12	s	IC CX20061
IC201	8-752-321-75	s	IC CXL5005P
IC202	8-759-982-25	s	IC RC78L09A
IC251	8-741-124-80	s	IC BX1248
IC301	8-759-200-60	s	IC TA7060AP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC302	8-752-006-12	s	IC CX20061
IC303	8-749-900-68	s	IC BX-1447L
IC304	8-749-900-59	s	IC BX-1448L
IC305	8-759-345-38	s	IC HD14538BP
IC401	8-743-880-00	s	IC BX-388
IC402	8-743-880-00	s	IC BX-388
IC403	8-759-208-10	s	IC TC4053BPHB
IC502	8-752-006-12	s	IC CX20061
IC503	8-743-890-00	s	IC BX-389
IC505	8-759-045-38	s	IC MC14538BCP
L1	1-410-482-31	s	INDUCTOR 100uH
L2	1-410-087-31	s	INDUCTOR 10mH
L3	1-410-471-11	s	INDUCTOR 12uH
L4	1-410-471-11	s	INDUCTOR 12uH
L5	1-410-087-31	s	INDUCTOR 10mH
L7	1-410-473-11	s	INDUCTOR 18uH
L9	1-410-092-21	s	INDUCTOR 27mH
L10	1-410-482-31	s	INDUCTOR 100uH
L15	1-410-470-11	s	INDUCTOR 10uH
L16	1-410-482-31	s	INDUCTOR 100uH
L17	1-410-482-31	s	INDUCTOR 100uH
L18	1-410-482-31	s	INDUCTOR 100uH
L19	1-410-473-11	s	INDUCTOR 18uH
L22	1-410-482-31	s	INDUCTOR 100uH
L23	1-410-482-31	s	INDUCTOR 100uH
L24	1-410-482-31	s	INDUCTOR 100uH
L25	1-410-473-11	s	INDUCTOR 18uH
L26	1-410-087-31	s	INDUCTOR 10mH
L28	1-410-476-11	s	INDUCTOR 33uH
L29	1-410-478-11	s	INDUCTOR 47uH
L31	1-410-473-11	s	INDUCTOR 18uH
L33	1-410-478-11	s	INDUCTOR 47uH
L35	1-410-470-11	s	INDUCTOR 10uH
L37	1-410-461-41	s	INDUCTOR 1.8uH
L201	1-410-482-31	s	INDUCTOR 100uH
L301	1-410-482-31	s	INDUCTOR 100uH
L401	1-410-482-31	s	INDUCTOR 100uH
L402	1-410-482-31	s	INDUCTOR 100uH
L403	1-410-482-31	s	INDUCTOR 100uH
L501	1-410-482-31	s	INDUCTOR 100uH
L502	1-410-482-31	s	INDUCTOR 100uH
L504	1-410-476-11	s	INDUCTOR 33uH
L505	1-410-482-31	s	INDUCTOR 100uH
LV301	1-407-569-00	s	COIL, VAR 10uH
LV501	1-407-268-00	s	INDUCTOR, VAR 1.5mH
Q1	8-729-603-50	s	TRANSISTOR 2SC403SP
Q2	8-729-603-50	s	TRANSISTOR 2SC403SP
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q5	8-729-900-89	s	TRANSISTOR DTC144ES
Q6	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-603-50	s	TRANSISTOR 2SC403SP
Q9	8-729-603-50	s	TRANSISTOR 2SC403SP
Q10	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q11	8-729-113-31	s	TRANSISTOR 2SB733-2
Q12	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q13	8-729-603-50	s	TRANSISTOR 2SC403SP
Q14	8-729-603-50	s	TRANSISTOR 2SC403SP

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q15	8-729-900-89	s	TRANSISTOR DTC144ES
Q16	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q17	8-729-603-50	s	TRANSISTOR 2SC403SP
Q18	8-729-603-50	s	TRANSISTOR 2SC403SP
Q19	8-729-603-50	s	TRANSISTOR 2SC403SP
Q20	8-729-603-50	s	TRANSISTOR 2SC403SP
Q21	8-729-119-76	s	TRANSISTOR 2SA1175
Q22	8-729-603-50	s	TRANSISTOR 2SC403SP
Q23	8-729-603-50	s	TRANSISTOR 2SC403SP
Q24	8-729-119-76	s	TRANSISTOR 2SA1175
Q25	8-729-105-72	s	TRANSISTOR 2SK523-L1
Q26	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q27	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q28	8-729-603-50	s	TRANSISTOR 2SC403SP
Q29	8-729-119-76	s	TRANSISTOR 2SA1175
Q30	8-729-603-50	s	TRANSISTOR 2SC403SP
Q32	8-729-603-50	s	TRANSISTOR 2SC403SP
Q33	8-729-603-50	s	TRANSISTOR 2SC403SP
Q34	8-729-603-50	s	TRANSISTOR 2SC403SP
Q35	8-729-603-50	s	TRANSISTOR 2SC403SP
Q36	8-729-603-50	s	TRANSISTOR 2SC403SP
Q37	8-729-603-50	s	TRANSISTOR 2SC403SP
Q38	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q39	8-729-603-50	s	TRANSISTOR 2SC403SP
Q40	8-729-603-50	s	TRANSISTOR 2SC403SP
Q41	8-729-119-76	s	TRANSISTOR 2SA1175
Q42	8-729-900-89	s	TRANSISTOR DTC144ES
Q43	8-729-603-50	s	TRANSISTOR 2SC403SP
Q44	8-729-603-50	s	TRANSISTOR 2SC403SP
Q45	8-729-603-50	s	TRANSISTOR 2SC403SP
Q46	8-729-603-50	s	TRANSISTOR 2SC403SP
Q47	8-729-900-89	s	TRANSISTOR DTC144ES
Q48	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q49	8-729-603-50	s	TRANSISTOR 2SC403SP
Q50	8-729-603-50	s	TRANSISTOR 2SC403SP
Q51	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q52	8-729-603-50	s	TRANSISTOR 2SC403SP
Q53	8-729-603-50	s	TRANSISTOR 2SC403SP
Q54	8-729-603-50	s	TRANSISTOR 2SC403SP
Q55	8-729-603-50	s	TRANSISTOR 2SC403SP
Q56	8-729-603-50	s	TRANSISTOR 2SC403SP
Q57	8-729-900-89	s	TRANSISTOR DTC144ES
Q58	8-729-900-89	s	TRANSISTOR DTC144ES
Q59	8-729-900-89	s	TRANSISTOR DTC144ES
Q61	8-729-900-89	s	TRANSISTOR DTC144ES
Q201	8-729-900-89	s	TRANSISTOR DTC144ES
Q202	8-729-119-76	s	TRANSISTOR 2SA1175
Q203	8-729-603-50	s	TRANSISTOR 2SC403SP
Q204	8-729-603-50	s	TRANSISTOR 2SC403SP
Q205	8-729-119-76	s	TRANSISTOR 2SA1175
Q206	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q301	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q302	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q305	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q306	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q307	8-729-900-89	s	TRANSISTOR DTC144ES
Q308	8-729-900-89	s	TRANSISTOR DTC144ES
Q309	8-729-603-50	s	TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-69 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q310	8-729-900-89	s	TRANSISTOR DTC144ES
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q402	8-729-603-50	s	TRANSISTOR 2SC403SP
Q403	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q404	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q405	8-729-603-50	s	TRANSISTOR 2SC403SP
Q406	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q407	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q408	8-729-900-89	s	TRANSISTOR DTC144ES
Q409	8-729-119-76	s	TRANSISTOR 2SA1175
Q410	8-729-119-76	s	TRANSISTOR 2SA1175
Q411	8-729-119-76	s	TRANSISTOR 2SA1175
Q412	8-729-119-76	s	TRANSISTOR 2SA1175
Q413	8-729-900-89	s	TRANSISTOR DTC144ES
Q414	8-729-900-89	s	TRANSISTOR DTC144ES
Q501	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q502	8-729-603-50	s	TRANSISTOR 2SC403SP
Q503	8-729-603-50	s	TRANSISTOR 2SC403SP
Q504	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q505	8-729-603-50	s	TRANSISTOR 2SC403SP
Q506	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q507	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q511	8-729-900-89	s	TRANSISTOR DTC144ES
Q512	8-729-603-50	s	TRANSISTOR 2SC403SP
Q513	8-729-201-05	s	TRANSISTOR 2SC2878-B
R84	1-249-442-11	s	CARBON 510 5% 1/4W
R97	1-247-887-00	s	CARBON 220K 5% 1/4W
R188	1-247-852-11	s	CARBON 7.5K 5% 1/4W
R201	1-247-903-00	s	CARBON 1M 5% 1/4W
RV1	1-228-990-00	s	RES, ADJ, METAL 1K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-990-00	s	RES, ADJ, METAL 1K
RV4	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV5	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV6	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV8	1-228-995-00	s	RES, ADJ, METAL 22K
RV9	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV10	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV11	1-228-989-00	s	RES, ADJ, METAL 470
RV13	1-228-995-00	s	RES, ADJ, METAL 22K
RV16	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV17	1-228-994-00	s	RES, ADJ, METAL 10K
RV201	1-228-989-00	s	RES, ADJ, METAL 470
RV251	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV301	1-228-994-00	s	RES, ADJ, METAL 10K
RV401	1-228-989-00	s	RES, ADJ, METAL 470
RV402	1-228-989-00	s	RES, ADJ, METAL 470
RV403	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV501	1-228-990-00	s	RES, ADJ, METAL 1K
RV502	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV503	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV524	1-228-996-00	s	RES, ADJ, METAL 47K
S301	1-552-509-00	s	SWITCH, DIP 1-CKT

DM-70 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-034-A	o	MOUNTED CIRCUIT BOARD, DM-70
C506	1-124-360-00	s	ELECT 1000uF 20% 16V
C525	1-124-589-11	s	ELECT 47uF 20% 16V
C526	1-161-494-00	s	CERAMIC 0.022uF 25V
C527	1-126-160-11	s	ELECT 1uF 20% 50V
C529	1-126-157-11	s	ELECT 10uF 20% 16V
C531	1-126-160-11	s	ELECT 1uF 20% 50V
C532	1-126-160-11	s	ELECT 1uF 20% 50V
C533	1-126-101-11	s	ELECT 100uF 20% 16V
C534	1-161-494-00	s	CERAMIC 0.022uF 25V
C535	1-126-157-11	s	ELECT 10uF 20% 16V
C537	1-126-157-11	s	ELECT 10uF 20% 16V
C538	1-126-157-11	s	ELECT 10uF 20% 16V
C541	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C543	1-126-101-11	s	ELECT 100uF 20% 16V
C544	1-161-494-00	s	CERAMIC 0.022uF 25V
C547	1-124-589-11	s	ELECT 47uF 20% 16V
C548	1-124-589-11	s	ELECT 47uF 20% 16V
C549	1-161-494-00	s	CERAMIC 0.022uF 25V
C550	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C552	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C554	1-161-494-00	s	CERAMIC 0.022uF 25V
C557	1-161-494-00	s	CERAMIC 0.022uF 25V
C558	1-161-494-00	s	CERAMIC 0.022uF 25V
C559	1-161-494-00	s	CERAMIC 0.022uF 25V
C561	1-131-379-00	s	TANTALUM 22uF 10% 10V
C562	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C563	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C564	1-131-379-00	s	TANTALUM 22uF 10% 10V
C565	1-126-157-11	s	ELECT 10uF 20% 16V
C567	1-124-584-00	s	ELECT 100uF 20% 10V
C568	1-162-724-11	s	CERAMIC 390PF 1% 50V
C571	1-161-494-00	s	CERAMIC 0.022uF 25V
C572	1-161-494-00	s	CERAMIC 0.022uF 25V
C573	1-126-160-11	s	ELECT 1uF 20% 50V
C575	1-126-101-11	s	ELECT 100uF 20% 16V
C576	1-161-494-00	s	CERAMIC 0.022uF 25V
C578	1-161-494-00	s	CERAMIC 0.022uF 25V
C579	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C580	1-124-589-11	s	ELECT 47uF 20% 16V
C582	1-161-494-00	s	CERAMIC 0.022uF 25V
C583	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C585	1-131-343-00	s	TANTALUM 0.22uF 10% 35V
C587	1-161-494-00	s	CERAMIC 0.022uF 25V
C588	1-124-589-11	s	ELECT 47uF 20% 16V
C589	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C591	1-124-589-11	s	ELECT 47uF 20% 16V
C592	1-161-494-00	s	CERAMIC 0.022uF 25V
C595	1-124-589-11	s	ELECT 47uF 20% 16V
C596	1-161-494-00	s	CERAMIC 0.022uF 25V
C598	1-124-257-00	s	ELECT 2.2uF 20% 50V
C599	1-162-726-11	s	CERAMIC 470PF 1% 50V
C600	1-162-730-11	s	CERAMIC 680PF 1% 50V
C601	1-126-160-11	s	ELECT 1uF 20% 50V
C602	1-161-494-00	s	CERAMIC 0.022uF 25V
C604	1-124-589-11	s	ELECT 47uF 20% 16V
C605	1-161-494-00	s	CERAMIC 0.022uF 25V
C606	1-161-379-00	s	CERAMIC 0.01uF 20% 25V

(DM-70 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C609	1-161-494-00	s	CERAMIC 0.022uF 25V
C610	1-124-589-11	s	ELECT 47uF 20% 16V
C611	1-161-494-00	s	CERAMIC 0.022uF 25V
C613	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C616	1-161-494-00	s	CERAMIC 0.022uF 25V
C617	1-126-157-11	s	ELECT 10uF 20% 16V
C618	1-162-716-11	s	CERAMIC 180PF 1% 50V
C620	1-161-494-00	s	CERAMIC 0.022uF 25V
C622	1-126-157-11	s	ELECT 10uF 20% 16V
C623	1-126-157-11	s	ELECT 10uF 20% 16V
C629	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C630	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C631	1-124-589-11	s	ELECT 47uF 20% 16V
C632	1-124-589-11	s	ELECT 47uF 20% 16V
C634	1-161-494-00	s	CERAMIC 0.022uF 25V
C640	1-161-494-00	s	CERAMIC 0.022uF 25V
C641	1-161-494-00	s	CERAMIC 0.022uF 25V
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-911-19	s	DIODE 1SS119
D504	8-719-911-19	s	DIODE 1SS119
D505	8-719-911-19	s	DIODE 1SS119
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-911-19	s	DIODE 1SS119
D508	8-719-911-19	s	DIODE 1SS119
D509	8-719-911-19	s	DIODE 1SS119
D510	8-719-911-19	s	DIODE 1SS119
D511	8-719-815-59	s	DIODE 1S1555-S
D514	8-719-104-10	s	DIODE 1SS99
D515	8-719-104-10	s	DIODE 1SS99
D516	8-719-104-10	s	DIODE 1SS99
D517	8-719-104-10	s	DIODE 1SS99
D520	8-719-911-19	s	DIODE 1SS119
D521	8-719-911-19	s	DIODE 1SS119
D523	8-719-911-19	s	DIODE 1SS119
D524	8-719-911-19	s	DIODE 1SS119
DL506	1-415-402-11	s	DELAY LINE 300nS
FL502	1-235-470-11	s	FILTER, LOW-PASS
FL503	1-235-619-11	s	FILTER, BANDPASS 4.27MHz
FL504	1-235-618-21	s	FILTER, BANDPASS 3.58MHz
IC506	8-749-901-14	s	IC BX-1250L
IC508	8-741-126-40	s	IC BX-1264
IC509	8-752-006-12	s	IC CX20061
IC511	8-759-908-59	s	IC CX859
IC512	8-750-000-46	s	IC CX872
IC514	8-749-901-06	s	IC BX-1251L
IC518	8-759-200-60	s	IC TA7060AP
IC519	8-752-006-12	s	IC CX20061
L506	1-410-482-31	s	INDUCTOR 100uH
L507	1-410-482-31	s	INDUCTOR 100uH
L508	1-410-482-31	s	INDUCTOR 100uH
L509	1-410-482-31	s	INDUCTOR 100uH
L510	1-410-478-11	s	INDUCTOR 47uH
L511	1-410-068-21	s	INDUCTOR 5.6mH
L513	1-410-068-21	s	INDUCTOR 5.6mH
L516	1-410-482-31	s	INDUCTOR 100uH
L517	1-410-482-31	s	INDUCTOR 100uH

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(DM-70 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L518	1-410-482-31	s	INDUCTOR 100uH
L519	1-410-482-31	s	INDUCTOR 100uH
L520	1-410-482-31	s	INDUCTOR 100uH
L524	1-410-470-11	s	INDUCTOR 10uH
Q508	8-729-603-50	s	TRANSISTOR 2SC403SP
Q509	8-729-900-89	s	TRANSISTOR DTC144ES
Q520	8-729-119-76	s	TRANSISTOR 2SA1175
Q521	8-729-603-50	s	TRANSISTOR 2SC403SP
Q522	8-729-603-50	s	TRANSISTOR 2SC403SP
Q523	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q524	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q525	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q526	8-729-603-50	s	TRANSISTOR 2SC403SP
Q527	8-729-119-76	s	TRANSISTOR 2SA1175
Q528	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q529	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q530	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q531	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q532	8-729-900-89	s	TRANSISTOR DTC144ES
Q533	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q534	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q535	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q536	8-729-603-50	s	TRANSISTOR 2SC403SP
Q537	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q538	8-729-603-50	s	TRANSISTOR 2SC403SP
Q539	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q540	8-729-900-89	s	TRANSISTOR DTC144ES
Q541	8-729-603-50	s	TRANSISTOR 2SC403SP
Q542	8-729-603-50	s	TRANSISTOR 2SC403SP
Q543	8-729-603-50	s	TRANSISTOR 2SC403SP
Q544	8-729-603-50	s	TRANSISTOR 2SC403SP
Q545	8-729-603-50	s	TRANSISTOR 2SC403SP
Q546	8-729-900-89	s	TRANSISTOR DTC144ES
Q547	8-729-603-50	s	TRANSISTOR 2SC403SP
Q548	8-729-603-50	s	TRANSISTOR 2SC403SP
Q549	8-729-603-50	s	TRANSISTOR 2SC403SP
Q550	8-729-900-89	s	TRANSISTOR DTC144ES
R593	1-247-889-00	s	CARBON 270K 5% 1/4W
R623	1-247-885-00	s	CARBON 180K 5% 1/4W
RV504	1-228-989-00	s	RES, ADJ, METAL 470
RV505	1-228-994-00	s	RES, ADJ, METAL 10K
RV506	1-228-995-00	s	RES, ADJ, METAL 22K
RV507	1-228-994-00	s	RES, ADJ, METAL 10K
RV508	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV509	1-228-995-00	s	RES, ADJ, METAL 22K
RV510	1-228-994-00	s	RES, ADJ, METAL 10K
RV511	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV513	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV517	1-228-990-00	s	RES, ADJ, METAL 1K
RV518	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV519	1-228-995-00	s	RES, ADJ, METAL 22K
RV523	1-228-991-00	s	RES, ADJ, METAL 2.2K
S501	1-552-509-00	s	SWITCH, DIP 1-CKT
T502	1-426-185-11	s	TRANSFORMER, BURST AMP

DP-62 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-733-11	o	PRINTED CIRCUIT BOARD, DP-62
CN3	1-535-761-11	o	CABLE, JUMPER 23P
D201	8-719-942-19	s	LED LB402VK
D202	8-719-942-19	s	LED LB402VK
D203	8-719-942-19	s	LED LB402VK
D204	8-719-942-19	s	LED LB402VK
S201	1-552-539-00	s	SWITCH, TACTILE
S202	1-552-539-00	s	SWITCH, TACTILE

DUS-92 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-615-924-11	o	PRINTED CIRCUIT BOARD, DUS-92
H1003	8-825-578-22	s	HEAD, ACE

DUS-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-261-11	o	PRINTED CIRCUIT BOARD, DUS-147

DUS-271 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-480-11	o	PRINTED CIRCUIT BOARD, DUS-271
S1	1-571-083-21	s	SWITCH, SLIDE
S2	1-571-083-21	s	SWITCH, SLIDE

EC-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-475-11	o	PRINTED CIRCUIT BOARD, EC-32
1pc	8-825-514-20	s	HEAD, CTL PP170-58

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

HN-84 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-726-11	o	PRINTED CIRCUIT BOARD, HN-84
1pc	8-825-771-31	s	HEAD, TIME CODE PP295-58

HN-130 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-474-11	o	PRINTED CIRCUIT BOARD, HN-130
1pc	8-825-544-20	s	HEAD, ERASE

HP-42 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-477-11	o	PRINTED CIRCUIT BOARD, HP-42
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
RV1	1-237-703-11	s	RES, VAR, CARBON 2K/2K
RV2	1-237-703-11	s	RES, VAR, CARBON 2K/2K

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

KY-159 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-525-A	o	MOUNTED CIRCUIT BOARD, KY-159
4pcs	3-733-617-01	s	HOLDER, BUZZER
4pcs	3-733-618-01	s	PIN, BUZZER HOLDER
1pc	3-718-657-01	o	HOLDER, LED
1pc	3-733-652-01	o	SPACER, 7 SEG
1pc	7-684-023-04	s	N 3, TYPE 2
1pc	7-682-649-09	s	SCREW +PS 3X10
BT1	1-528-229-11	o	BATTERY, LITHIUM CR-2450
C1	1-124-480-11	s	ELECT 470uF 20% 25V
C2	1-162-210-31	s	CERAMIC 30PF 5% 50V
C3	1-162-210-31	s	CERAMIC 30PF 5% 50V
C5	1-124-480-11	s	ELECT 470uF 20% 25V
C6	1-124-120-11	s	ELECT 220uF 20% 25V
C8	1-125-443-11	s	DOUBLE LAYERS 0.047FARAD 5.5V
C9	1-126-094-11	s	ELECT 4.7uF 20% 35V
C10	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C12	1-162-210-31	s	CERAMIC 30PF 5% 50V
C13	1-162-210-31	s	CERAMIC 30PF 5% 50V
C15	1-124-477-11	s	ELECT 47uF 20% 25V
C17	1-126-094-11	s	ELECT 4.7uF 20% 35V
D1	8-719-911-19	s	DIODE 1SS119
D9	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D14	8-719-911-19	s	DIODE 1SS119
D15	8-719-911-19	s	DIODE 1SS119
D16	8-719-911-19	s	DIODE 1SS119
D17	8-719-911-19	s	DIODE 1SS119
D18	8-719-911-19	s	DIODE 1SS119
D19	8-719-911-19	s	DIODE 1SS119
D20	8-719-911-19	s	DIODE 1SS119
D21	8-719-911-19	s	DIODE 1SS119
D22	8-719-911-19	s	DIODE 1SS119
D23	8-719-911-19	s	DIODE 1SS119
D24	8-719-911-19	s	DIODE 1SS119
D25	8-719-911-19	s	DIODE 1SS119
D26	8-719-911-19	s	DIODE 1SS119
D27	8-719-911-19	s	DIODE 1SS119
D28	8-719-911-19	s	DIODE 1SS119
D29	8-719-104-10	s	DIODE 1SS99
D45	8-719-911-19	s	DIODE 1SS119
D46	8-719-911-19	s	DIODE 1SS119
D48	8-719-200-02	s	DIODE 10E2
D49	8-719-911-19	s	DIODE 1SS119
D51	8-719-104-10	s	DIODE 1SS99
D52	8-719-911-19	s	DIODE 1SS119
D54	8-719-911-19	s	DIODE 1SS119
D55	8-719-911-19	s	DIODE 1SS119
D101	8-719-939-39	s	LED GL5HD8, RED
D102	8-719-802-11	s	LED TLUG154, GRN
D103	8-719-939-39	s	LED GL5HD8, RED
D104	8-719-939-39	s	LED GL5HD8, RED
D105	8-719-939-39	s	LED GL5HD8, RED
D106	8-719-939-39	s	LED GL5HD8, RED
D107	8-719-939-39	s	LED GL5HD8, RED

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D108	8-719-939-39	s	LED GL5HD8, RED
D109	8-719-939-39	s	LED GL5HD8, RED
D110	8-719-939-39	s	LED GL5HD8, RED
D111	8-719-939-39	s	LED GL5HD8, RED
D112	8-719-939-39	s	LED GL5HD8, RED
D113	8-719-939-39	s	LED GL5HD8, RED
D114	8-719-820-28	s	LED TLG-256, GRN
D115	8-719-820-28	s	LED TLG-256, GRN
D116	8-719-939-39	s	LED GL5HD8, RED
D117	8-719-802-11	s	LED TLUG154, GRN
IC1	8-759-605-23	s	IC M50747H-601SP
IC2	8-759-645-16	s	IC M54516P
IC3	8-759-645-16	s	IC M54516P
IC4	8-759-645-16	s	IC M54516P
IC5	8-759-600-68	s	IC M54562P
IC6	8-759-982-21	s	IC RC78L05A
IC7	8-759-937-29	s	IC MB88201H-539N
IC8	8-759-604-35	s	IC M5F78M05
Q2	8-729-900-67	s	TRANSISTOR DTA124XS
Q3	8-729-900-67	s	TRANSISTOR DTA124XS
Q4	8-729-900-67	s	TRANSISTOR DTA124XS
Q5	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q8	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q9	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q10	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q11	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q12	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q13	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q14	8-719-903-02	s	TRANSISTOR DTA143XS-TP
Q15	8-729-900-02	s	TRANSISTOR DTC144ES
R24	1-249-404-00	s	CARBON 82 5% 1/4W
R25	1-249-404-00	s	CARBON 82 5% 1/4W
R26	1-249-404-00	s	CARBON 82 5% 1/4W
R27	1-249-404-00	s	CARBON 82 5% 1/4W
R28	1-249-404-00	s	CARBON 82 5% 1/4W
R29	1-249-404-00	s	CARBON 82 5% 1/4W
R30	1-249-404-00	s	CARBON 82 5% 1/4W
R31	1-249-404-00	s	CARBON 82 5% 1/4W
R32	1-247-903-00	s	CARBON 1M 5% 1/4W
RB1	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB2	1-231-410-00	s	RESISTOR BLOCK 10Kx8
S1	1-552-539-00	s	SWITCH, TACTILE
S9	1-552-539-00	s	SWITCH, TACTILE
S10	1-552-539-00	s	SWITCH, TACTILE
S11	1-552-539-00	s	SWITCH, TACTILE
S12	1-552-539-00	s	SWITCH, TACTILE
S13	1-552-539-00	s	SWITCH, TACTILE
S14	1-552-539-00	s	SWITCH, TACTILE
S15	1-552-539-00	s	SWITCH, TACTILE
S16	1-552-539-00	s	SWITCH, TACTILE
S17	1-552-539-00	s	SWITCH, TACTILE
S18	1-552-539-00	s	SWITCH, TACTILE
S19	1-552-539-00	s	SWITCH, TACTILE
S20	1-516-961-00	s	SWITCH, LEVER SLIDE
S23	1-552-539-00	s	SWITCH, TACTILE
S24	1-552-539-00	s	SWITCH, TACTILE

(KY-159 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S25	1-552-539-00	s	SWITCH, TACTILE
S26	1-552-539-00	s	SWITCH, TACTILE
S27	1-552-539-00	s	SWITCH, TACTILE
S28	1-516-995-00	s	SWITCH, LEVER SLIDE
S29	1-552-539-00	s	SWITCH, TACTILE
X1	1-567-869-11	s	RESONATOR, CERAMIC 9.83MHz
X2	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

LM-13 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-618-600-11	o	PRINTED CIRCUIT BOARD, LM-13
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A "THREADING"

LP-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-623-101-11	o	PRINTED CIRCUIT BOARD, LP-41
D1	8-719-800-89	s	LED TLY255, YEL
D2	8-719-800-89	s	LED TLY255, YEL
D3	8-719-800-89	s	LED TLY255, YEL
R1	1-247-706-11	s	CARBON 330 5% 1/4W
R2	1-247-706-11	s	CARBON 330 5% 1/4W
R3	1-247-706-11	s	CARBON 330 5% 1/4W

MC-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-222-11	o	PRINTED CIRCUIT BOARD, MC-28
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C2	1-161-379-00	s	CERAMIC 0.01uF 20% 25V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

MD-59 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-035-A	o	MOUNTED CIRCUIT BOARD, MD-59
1pc	3-733-657-01	o	SHIELD (LID), MD
2pcs	3-621-124-00	s	SPACER
C1	1-124-360-00	s	ELECT 1000uF 20% 16V
C2	1-124-360-00	s	ELECT 1000uF 20% 16V
C3	1-124-589-11	s	ELECT 47uF 20% 16V
C4	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C5	1-126-101-11	s	ELECT 100uF 20% 16V
C6	1-126-101-11	s	ELECT 100uF 20% 16V
C9	1-162-732-11	s	CERAMIC 820PF 1% 50V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C12	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C17	1-124-584-00	s	ELECT 100uF 20% 10V
C18	1-124-584-00	s	ELECT 100uF 20% 10V
C20	1-124-584-00	s	ELECT 100uF 20% 10V
C22	1-124-589-11	s	ELECT 47uF 20% 16V
C23	1-161-494-00	s	CERAMIC 0.022uF 25V
C24	1-124-589-11	s	ELECT 47uF 20% 16V
C25	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C29	1-126-157-11	s	ELECT 10uF 20% 16V
C30	1-124-589-11	s	ELECT 47uF 20% 16V
C32	1-126-157-11	s	ELECT 10uF 20% 16V
C33	1-126-157-11	s	ELECT 10uF 20% 16V
C35	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C36	1-126-157-11	s	ELECT 10uF 20% 16V
C37	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C38	1-124-589-11	s	ELECT 47uF 20% 16V
C41	1-124-120-11	s	ELECT 220uF 20% 25V
C42	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C43	1-126-157-11	s	ELECT 10uF 20% 16V
C44	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C45	1-124-472-11	s	ELECT 470uF 20% 10V
C46	1-131-356-00	s	TANTALUM 3.3uF 10% 25V
C48	1-124-360-00	s	ELECT 1000uF 20% 16V
C49	1-131-374-00	s	TANTALUM 33uF 10% 16V
C51	1-161-494-00	s	CERAMIC 0.022uF 25V
C52	1-124-589-11	s	ELECT 47uF 20% 16V
C55	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C56	1-124-589-11	s	ELECT 47uF 20% 16V
C57	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C58	1-124-589-11	s	ELECT 47uF 20% 16V
C59	1-124-589-11	s	ELECT 47uF 20% 16V
C60	1-162-726-11	s	CERAMIC 470PF 1% 50V
C63	1-124-589-11	s	ELECT 47uF 20% 16V
C64	1-161-494-00	s	CERAMIC 0.022uF 25V
C69	1-162-728-11	s	CERAMIC 560PF 1% 50V
C70	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C73	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C76	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C77	1-161-494-00	s	CERAMIC 0.022uF 25V
C79	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C84	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C85	1-161-494-00	s	CERAMIC 0.022uF 25V
C86	1-161-494-00	s	CERAMIC 0.022uF 25V
C89	1-126-157-11	s	ELECT 10uF 20% 16V
C90	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C91	1-124-589-11	s	ELECT 47uF 20% 16V
C92	1-126-094-11	s	ELECT 4.7uF 20% 35V
C93	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C94	1-124-589-11	s	ELECT 47uF 20% 16V
C95	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C96	1-124-584-00	s	ELECT 100uF 20% 10V
C97	1-161-494-00	s	CERAMIC 0.022uF 25V
C98	1-161-494-00	s	CERAMIC 0.022uF 25V
C99	1-126-101-11	s	ELECT 100uF 20% 16V
C100	1-161-494-00	s	CERAMIC 0.022uF 25V
C101	1-161-494-00	s	CERAMIC 0.022uF 25V
C102	1-124-589-11	s	ELECT 47uF 20% 16V
C103	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C104	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C105	1-124-589-11	s	ELECT 47uF 20% 16V
C106	1-161-494-00	s	CERAMIC 0.022uF 25V
C112	1-126-157-11	s	ELECT 10uF 20% 16V
C113	1-126-162-11	s	ELECT 3.3uF 20% 50V
C115	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C116	1-162-732-11	s	CERAMIC 820PF 1% 50V
C117	1-126-176-11	s	ELECT 220uF 20% 10V
C119	1-126-176-11	s	ELECT 220uF 20% 10V
C121	1-124-234-00	s	ELECT 22uF 20% 16V
C201	1-124-589-11	s	ELECT 47uF 20% 16V
C202	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C203	1-126-160-11	s	ELECT 1uF 20% 50V
C204	1-126-157-11	s	ELECT 10uF 20% 16V
C209	1-126-157-11	s	ELECT 10uF 20% 16V
C210	1-126-157-11	s	ELECT 10uF 20% 16V
C211	1-126-157-11	s	ELECT 10uF 20% 16V
C212	1-126-157-11	s	ELECT 10uF 20% 16V
C213	1-161-494-00	s	CERAMIC 0.022uF 25V
C214	1-126-157-11	s	ELECT 10uF 20% 16V
C215	1-126-157-11	s	ELECT 10uF 20% 16V
C216	1-161-494-00	s	CERAMIC 0.022uF 25V
C217	1-162-728-11	s	CERAMIC 560PF 1% 50V
C218	1-126-157-11	s	ELECT 10uF 20% 16V
C219	1-126-160-11	s	ELECT 1uF 20% 50V
C220	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C221	1-124-589-11	s	ELECT 47uF 20% 16V
C222	1-101-890-00	s	CERAMIC 75PF 5% 50V
C223	1-161-494-00	s	CERAMIC 0.022uF 25V
C224	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C225	1-124-589-11	s	ELECT 47uF 20% 16V
C226	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C227	1-124-589-11	s	ELECT 47uF 20% 16V
C228	1-161-494-00	s	CERAMIC 0.022uF 25V
C230	1-161-494-00	s	CERAMIC 0.022uF 25V
C231	1-161-494-00	s	CERAMIC 0.022uF 25V
C233	1-124-589-11	s	ELECT 47uF 20% 16V
C234	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C235	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C237	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C240	1-109-546-00	s	MICA 300PF 5% 100V
C241	1-109-548-00	s	MICA 360PF 5% 100V
C242	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C243	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C244	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C245	1-161-494-00	s	CERAMIC 0.022uF 25V
C247	1-124-589-11	s	ELECT 47uF 20% 16V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C248	1-126-176-11	s	ELECT 220uF 20% 10V
C249	1-126-157-11	s	ELECT 10uF 20% 16V
C250	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C253	1-161-494-00	s	CERAMIC 0.022uF 25V
C254	1-161-494-00	s	CERAMIC 0.022uF 25V
C255	1-161-494-00	s	CERAMIC 0.022uF 25V
C256	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C257	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C258	1-161-494-00	s	CERAMIC 0.022uF 25V
C259	1-161-494-00	s	CERAMIC 0.022uF 25V
C260	1-161-494-00	s	CERAMIC 0.022uF 25V
C262	1-126-162-11	s	ELECT 3.3uF 20% 50V
C263	1-161-494-00	s	CERAMIC 0.022uF 25V
C264	1-124-589-11	s	ELECT 47uF 20% 16V
C276	1-126-160-11	s	ELECT 1uF 20% 50V
C401	1-126-101-11	s	ELECT 100uF 20% 16V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C403	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C407	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C409	1-124-589-11	s	ELECT 47uF 20% 16V
C410	1-161-494-00	s	CERAMIC 0.022uF 25V
C411	1-126-103-11	s	ELECT 470uF 20% 16V
C412	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C413	1-126-101-11	s	ELECT 100uF 20% 16V
C416	1-124-589-11	s	ELECT 47uF 20% 16V
C417	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C418	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C419	1-126-157-11	s	ELECT 10uF 20% 16V
C420	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C422	1-124-584-00	s	ELECT 100uF 20% 10V
C423	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C427	1-124-225-00	s	ELECT 100uF 20% 6.3V
C431	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C432	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C434	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C435	1-124-589-11	s	ELECT 47uF 20% 16V
C436	1-124-589-11	s	ELECT 47uF 20% 16V
C437	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C438	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C439	1-126-157-11	s	ELECT 10uF 20% 16V
C441	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C443	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C444	1-124-584-00	s	ELECT 100uF 20% 10V
C445	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C449	1-124-225-00	s	ELECT 100uF 20% 6.3V
C461	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C463	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C464	1-126-157-11	s	ELECT 10uF 20% 16V
C465	1-161-494-00	s	CERAMIC 0.022uF 25V
C466	1-126-101-11	s	ELECT 100uF 20% 16V
C467	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C469	1-126-157-11	s	ELECT 10uF 20% 16V
C470	1-161-494-00	s	CERAMIC 0.022uF 25V
C471	1-126-157-11	s	ELECT 10uF 20% 16V
C472	1-126-157-11	s	ELECT 10uF 20% 16V
C473	1-126-157-11	s	ELECT 10uF 20% 16V
C476	1-126-157-11	s	ELECT 10uF 20% 16V
C477	1-126-157-11	s	ELECT 10uF 20% 16V
C478	1-161-379-00	s	CERAMIC 0.01uF 20% 25V

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C479	1-126-157-11	s	ELECT 10uF 20% 16V
C480	1-126-157-11	s	ELECT 10uF 20% 16V
C481	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C484	1-126-157-11	s	ELECT 10uF 20% 16V
C485	1-126-157-11	s	ELECT 10uF 20% 16V
C486	1-126-157-11	s	ELECT 10uF 20% 16V
C487	1-126-157-11	s	ELECT 10uF 20% 16V
C488	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C489	1-126-157-11	s	ELECT 10uF 20% 16V
C490	1-126-157-11	s	ELECT 10uF 20% 16V
C491	1-124-225-00	s	ELECT 100uF 20% 6.3V
C492	1-161-494-00	s	CERAMIC 0.022uF 25V
C494	1-126-157-11	s	ELECT 10uF 20% 16V
C495	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C496	1-126-157-11	s	ELECT 10uF 20% 16V
C497	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C498	1-124-589-11	s	ELECT 47uF 20% 16V
C499	1-124-225-00	s	ELECT 100uF 20% 6.3V
C503	1-124-225-00	s	ELECT 100uF 20% 6.3V
C505	1-126-154-11	s	ELECT 47uF 20% 6.3V
C506	1-126-101-11	s	ELECT 100uF 20% 16V
C507	1-126-157-11	s	ELECT 10uF 20% 16V
C511	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C512	1-124-589-11	s	ELECT 47uF 20% 16V
C513	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C514	1-124-589-11	s	ELECT 47uF 20% 16V
C515	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C517	1-126-157-11	s	ELECT 10uF 20% 16V
C519	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C520	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C522	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C523	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C524	1-161-494-00	s	CERAMIC 0.022uF 25V
C525	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C526	1-124-589-11	s	ELECT 47uF 20% 16V
C527	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C528	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C529	1-162-728-11	s	CERAMIC 560PF 1% 50V
C530	1-124-472-11	s	ELECT 470uF 20% 10V
C532	1-124-234-00	s	ELECT 22uF 20% 16V
C701	1-161-494-00	s	CERAMIC 0.022uF 25V
C702	1-102-971-00	s	CERAMIC 82PF 5% 50V
C708	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C709	1-161-494-00	s	CERAMIC 0.022uF 25V
C710	1-124-589-11	s	ELECT 47uF 20% 16V
CF401	1-567-390-11	s	FILTER, CERAMIC
CF402	1-567-390-11	s	FILTER, CERAMIC
CN162	1-506-471-11	s	CONNECTOR, 6P, MALE
CV401	1-141-246-00	s	CAP, TRIMMER 20PF
CV701	1-141-246-00	s	CAP, TRIMMER 20PF
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-109-44	s	DIODE 1SS99-1
D3	8-719-109-44	s	DIODE 1SS99-1
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-19	s	DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D8	8-719-911-19	s	DIODE 1SS119
D9	8-719-109-75	s	DIODE RD4.3ES-B2
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D13	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-915-43	s	DIODE, VARICAP FC54M
D206	8-719-109-44	s	DIODE 1SS99-1
D207	8-719-911-19	s	DIODE 1SS119
D208	8-719-911-19	s	DIODE 1SS119
D209	8-719-911-19	s	DIODE 1SS119
D210	8-719-911-19	s	DIODE 1SS119
D212	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D405	8-719-911-19	s	DIODE 1SS119
D805	8-719-911-19	s	DIODE 1SS119
DL201	1-415-402-11	s	DELAY LINE 300nS
DL401	1-415-348-21	s	DELAY LINE 280nS
DL402	1-415-348-21	s	DELAY LINE 280nS
DL403	1-415-348-21	s	DELAY LINE 280nS
DL404	1-415-545-11	s	DELAY LINE 350nS
DL405	1-415-551-11	s	DELAY LINE 140nS
FL1	1-236-040-11	s	FILTER, LOW-PASS
FL2	1-235-613-11	s	FILTER, HIGH-PASS
FL3	1-231-580-21	s	FILTER, HIGH-PASS
FL201	1-236-041-11	s	FILTER, LOW-PASS
FL401	1-235-757-11	s	FILTER, LOW-PASS
FL402	1-235-757-11	s	FILTER, LOW-PASS
FL403	1-235-757-11	s	FILTER, LOW-PASS
FL404	1-235-617-11	s	FILTER, LOW-PASS
IC1	8-752-006-12	s	IC CX20061
IC2	8-759-200-60	s	IC TA7060AP
IC3	8-751-310-10	s	IC CX-131A
IC4	8-741-125-70	s	IC BX-1257
IC5	8-752-006-12	s	IC CX20061
IC6	8-749-901-11	s	IC BX-1246L
IC7	8-759-982-21	s	IC RC78L05A
IC8	8-759-982-25	s	IC RC78L09A
IC201	8-752-006-12	s	IC CX20061
IC202	8-752-006-12	s	IC CX20061
IC203	8-751-880-00	s	IC CX188
IC204	8-752-006-12	s	IC CX20061
IC401	8-759-400-06	s	IC AN608P
IC402	8-752-320-32	s	IC CXL5001P
IC403	8-759-402-33	s	IC AN607P
IC404	8-752-320-32	s	IC CXL5001P
IC405	8-759-400-06	s	IC AN608P
IC406	8-752-201-30	s	IC CX22013
IC407	8-752-030-30	s	IC CXA1020P
IC408	8-759-969-13	s	IC SN16913P
IC409	8-759-981-64	s	IC LM2903DQ
IC410	8-759-602-80	s	IC M5215L
IC411	8-752-201-30	s	IC CX22013
IC412	8-743-890-00	s	IC BX-389

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC413	8-759-602-80	s	IC M5215L
L2	1-410-482-31	s	INDUCTOR 100uH
L3	1-410-482-31	s	INDUCTOR 100uH
L4	1-410-482-31	s	INDUCTOR 100uH
L8	1-410-087-31	s	INDUCTOR 10mH
L9	1-410-482-31	s	INDUCTOR 100uH
L10	1-410-482-31	s	INDUCTOR 100uH
L12	1-410-482-31	s	INDUCTOR 100uH
L13	1-410-482-31	s	INDUCTOR 100uH
L14	1-410-482-31	s	INDUCTOR 100uH
L19	1-410-473-11	s	INDUCTOR 18uH
L20	1-410-482-31	s	INDUCTOR 100uH
L21	1-410-482-31	s	INDUCTOR 100uH
L22	1-410-482-31	s	INDUCTOR 100uH
L24	1-410-482-31	s	INDUCTOR 100uH
L201	1-410-482-31	s	INDUCTOR 100uH
L203	1-410-482-31	s	INDUCTOR 100uH
L205	1-410-482-31	s	INDUCTOR 100uH
L206	1-410-482-31	s	INDUCTOR 100uH
L207	1-410-478-11	s	INDUCTOR 47uH
L208	1-410-482-31	s	INDUCTOR 100uH
L209	1-410-087-31	s	INDUCTOR 10mH
L210	1-410-478-11	s	INDUCTOR 47uH
L212	1-410-482-31	s	INDUCTOR 100uH
L215	1-410-478-11	s	INDUCTOR 47uH
L401	1-410-482-31	s	INDUCTOR 100uH
L403	1-410-482-31	s	INDUCTOR 100uH
L404	1-410-482-31	s	INDUCTOR 100uH
L405	1-410-482-31	s	INDUCTOR 100uH
L406	1-410-482-31	s	INDUCTOR 100uH
L407	1-410-482-31	s	INDUCTOR 100uH
L408	1-410-482-31	s	INDUCTOR 100uH
L409	1-410-470-11	s	INDUCTOR 10uH
L410	1-410-482-31	s	INDUCTOR 100uH
L411	1-410-471-11	s	INDUCTOR 12uH
L412	1-410-470-11	s	INDUCTOR 10uH
L413	1-410-482-31	s	INDUCTOR 100uH
L414	1-410-476-11	s	INDUCTOR 33uH
L415	1-410-482-31	s	INDUCTOR 100uH
L416	1-410-482-31	s	INDUCTOR 100uH
L420	1-410-482-31	s	INDUCTOR 100uH
L421	1-410-482-31	s	INDUCTOR 100uH
L422	1-410-470-11	s	INDUCTOR 10uH
L423	1-410-482-31	s	INDUCTOR 100uH
L424	1-410-482-31	s	INDUCTOR 100uH
L426	1-410-471-11	s	INDUCTOR 12uH
L701	1-410-471-11	s	INDUCTOR 12uH
L702	1-410-482-31	s	INDUCTOR 100uH
LV1	1-407-566-00	s	COIL, VAR 3.3uH
Q1	8-729-603-50	s	TRANSISTOR 2SC403SP
Q2	8-729-603-50	s	TRANSISTOR 2SC403SP
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q4	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q5	8-729-603-50	s	TRANSISTOR 2SC403SP
Q6	8-729-603-50	s	TRANSISTOR 2SC403SP
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-603-50	s	TRANSISTOR 2SC403SP

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q9	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q10	8-729-603-50	s	TRANSISTOR 2SC403SP
Q11	8-729-603-50	s	TRANSISTOR 2SC403SP
Q12	8-729-603-50	s	TRANSISTOR 2SC403SP
Q13	8-729-603-50	s	TRANSISTOR 2SC403SP
Q14	8-729-900-89	s	TRANSISTOR DTC144ES
Q15	8-729-603-50	s	TRANSISTOR 2SC403SP
Q16	8-729-603-50	s	TRANSISTOR 2SC403SP
Q17	8-729-603-50	s	TRANSISTOR 2SC403SP
Q18	8-729-603-50	s	TRANSISTOR 2SC403SP
Q19	8-729-603-50	s	TRANSISTOR 2SC403SP
Q20	8-729-603-50	s	TRANSISTOR 2SC403SP
Q21	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q22	8-729-603-50	s	TRANSISTOR 2SC403SP
Q23	8-729-119-76	s	TRANSISTOR 2SA1175
Q24	8-729-119-76	s	TRANSISTOR 2SA1175
Q25	8-729-603-50	s	TRANSISTOR 2SC403SP
Q26	8-729-603-50	s	TRANSISTOR 2SC403SP
Q27	8-729-603-50	s	TRANSISTOR 2SC403SP
Q28	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q29	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q30	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q31	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q32	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q33	8-729-900-89	s	TRANSISTOR DTC144ES
Q34	8-729-113-33	s	TRANSISTOR 2SB733-4
Q35	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q36	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q37	8-729-603-50	s	TRANSISTOR 2SC403SP
Q38	8-729-119-76	s	TRANSISTOR 2SA1175
Q41	8-729-603-50	s	TRANSISTOR 2SC403SP
Q42	8-729-603-50	s	TRANSISTOR 2SC403SP
Q43	8-729-603-50	s	TRANSISTOR 2SC403SP
Q44	8-729-900-89	s	TRANSISTOR DTC144ES
Q45	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q201	8-729-603-50	s	TRANSISTOR 2SC403SP
Q202	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q203	8-729-603-50	s	TRANSISTOR 2SC403SP
Q204	8-729-603-50	s	TRANSISTOR 2SC403SP
Q205	8-729-603-50	s	TRANSISTOR 2SC403SP
Q206	8-729-603-50	s	TRANSISTOR 2SC403SP
Q207	8-729-119-76	s	TRANSISTOR 2SA1175
Q208	8-729-603-50	s	TRANSISTOR 2SC403SP
Q209	8-729-603-50	s	TRANSISTOR 2SC403SP
Q210	8-729-603-50	s	TRANSISTOR 2SC403SP
Q211	8-729-603-50	s	TRANSISTOR 2SC403SP
Q212	8-729-119-76	s	TRANSISTOR 2SA1175
Q213	8-729-900-97	s	TRANSISTOR 2SC1740S-ET
Q214	8-729-603-50	s	TRANSISTOR 2SC403SP
Q215	8-729-603-50	s	TRANSISTOR 2SC403SP
Q216	8-729-603-50	s	TRANSISTOR 2SC403SP
Q217	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q218	8-729-603-50	s	TRANSISTOR 2SC403SP
Q222	8-729-173-38	s	TRANSISTOR 2SA733-K
Q223	8-729-603-50	s	TRANSISTOR 2SC403SP
Q401	8-729-603-50	s	TRANSISTOR 2SC403SP
Q402	8-729-603-50	s	TRANSISTOR 2SC403SP
Q403	8-729-603-50	s	TRANSISTOR 2SC403SP
Q404	8-729-603-50	s	TRANSISTOR 2SC403SP

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q405	8-729-603-50	s	TRANSISTOR 2SC403SP
Q406	8-729-603-50	s	TRANSISTOR 2SC403SP
Q407	8-729-119-76	s	TRANSISTOR 2SA1175
Q408	8-729-119-76	s	TRANSISTOR 2SA1175
Q409	8-729-603-50	s	TRANSISTOR 2SC403SP
Q410	8-729-119-76	s	TRANSISTOR 2SA1175
Q411	8-729-603-50	s	TRANSISTOR 2SC403SP
Q412	8-729-603-50	s	TRANSISTOR 2SC403SP
Q413	8-729-119-76	s	TRANSISTOR 2SA1175
Q414	8-729-603-50	s	TRANSISTOR 2SC403SP
Q415	8-729-119-76	s	TRANSISTOR 2SA1175
Q416	8-729-603-50	s	TRANSISTOR 2SC403SP
Q417	8-729-603-50	s	TRANSISTOR 2SC403SP
Q418	8-729-603-50	s	TRANSISTOR 2SC403SP
Q419	8-729-603-50	s	TRANSISTOR 2SC403SP
Q420	8-729-603-50	s	TRANSISTOR 2SC403SP
Q421	8-729-603-50	s	TRANSISTOR 2SC403SP
Q422	8-729-603-50	s	TRANSISTOR 2SC403SP
Q423	8-729-603-50	s	TRANSISTOR 2SC403SP
Q424	8-729-603-50	s	TRANSISTOR 2SC403SP
Q425	8-729-119-76	s	TRANSISTOR 2SA1175
Q426	8-729-603-50	s	TRANSISTOR 2SC403SP
Q427	8-729-603-50	s	TRANSISTOR 2SC403SP
Q428	8-729-603-50	s	TRANSISTOR 2SC403SP
Q429	8-729-603-50	s	TRANSISTOR 2SC403SP
Q430	8-729-119-76	s	TRANSISTOR 2SA1175
Q431	8-729-603-50	s	TRANSISTOR 2SC403SP
Q432	8-729-603-50	s	TRANSISTOR 2SC403SP
Q433	8-729-119-76	s	TRANSISTOR 2SA1175
Q434	8-729-119-76	s	TRANSISTOR 2SA1175
Q435	8-729-603-50	s	TRANSISTOR 2SC403SP
Q436	8-729-603-50	s	TRANSISTOR 2SC403SP
Q437	8-729-603-50	s	TRANSISTOR 2SC403SP
Q438	8-729-603-50	s	TRANSISTOR 2SC403SP
Q439	8-729-603-50	s	TRANSISTOR 2SC403SP
Q440	8-729-603-50	s	TRANSISTOR 2SC403SP
Q441	8-729-603-50	s	TRANSISTOR 2SC403SP
Q442	8-729-119-78	s	TRANSISTOR 2SC2785
Q701	8-729-603-50	s	TRANSISTOR 2SC403SP
Q702	8-729-603-50	s	TRANSISTOR 2SC403SP
Q801	8-729-113-33	s	TRANSISTOR 2SB733-4
Q802	8-729-900-89	s	TRANSISTOR DTC144ES
Q803	8-729-900-89	s	TRANSISTOR DTC144ES
R48	1-247-852-11	s	CARBON 7.5K 5% 1/4W
R60	1-247-893-11	s	CARBON 390K 5% 1/4W
R138	⚠1-532-679-21	s	LINK, IC 0.6A
R241	1-247-903-00	s	CARBON 1M 5% 1/4W
R465	1-247-903-00	s	CARBON 1M 5% 1/4W
R805	1-532-679-21	s	LINK, IC 0.6A
RV1	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV4	1-228-994-00	s	RES, ADJ, METAL 10K
RV5	1-237-524-21	s	RES, ADJ, METAL 1M
RV6	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV7	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV8	1-228-996-00	s	RES, ADJ, METAL 47K
RV9	1-228-995-00	s	RES, ADJ, METAL 22K

(MD-59 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV10	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV12	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV13	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV201	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV202	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV203	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV401	1-228-995-00	s	RES, ADJ, METAL 22K
RV402	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV403	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV404	1-228-995-00	s	RES, ADJ, METAL 22K
RV405	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV406	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV407	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV408	1-228-999-00	s	RES, ADJ, METAL 470K
RV409	1-228-995-00	s	RES, ADJ, METAL 22K
RV410	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV411	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV412	1-230-504-11	s	RES, ADJ, METAL 220
RV413	1-228-989-00	s	RES, ADJ, METAL 470
RV414	1-228-991-00	s	RES, ADJ, METAL 2.2K
T201	1-425-785-21	s	TRANSFORMER, BURST AMP
TH1	1-800-200-00	s	THERMISTOR S-3K
TH401	1-800-200-00	s	THERMISTOR S-3K
TH402	1-800-200-00	s	THERMISTOR S-3K
TH403	1-800-200-00	s	THERMISTOR S-3K
X201	1-527-536-00	s	CRYSTAL 3.579545MHz
X701	1-527-376-00	s	CRYSTAL 3.579545MHz

MT-53 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-478-11	o	PRINTED CIRCUIT BOARD, MT-53
D1	8-719-820-28	s	LED TLG-256, GRN
D2	8-719-820-27	s	LED TLY-256, YEL
D3	8-719-820-27	s	LED TLY-256, YEL
D4	8-719-820-27	s	LED TLY-256, YEL
D5	8-719-820-27	s	LED TLY-256, YEL
D6	8-719-820-27	s	LED TLY-256, YEL

NR-31 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-039-B	o	MOUNTED CIRCUIT BOARD, NR-31
C1	1-124-477-11	s	ELECT 47uF 20% 25V
C2	1-126-101-11	s	ELECT 100uF 20% 16V
C3	1-136-230-00	s	FILM 0.0022uF 3% 100V
C4	1-136-230-00	s	FILM 0.0022uF 3% 100V
C5	1-136-257-00	s	FILM 0.0039uF 3% 100V
C6	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C8	1-136-155-00	s	FILM 0.015uF 5% 50V
C10	1-136-169-00	s	FILM 0.22uF 5% 50V
C11	1-136-163-00	s	FILM 0.068uF 5% 50V
C13	1-130-339-00	s	FILM 0.0056uF 3% 100V
C14	1-136-153-00	s	FILM 0.01uF 5% 50V
C19	1-126-101-11	s	ELECT 100uF 20% 16V
C23	1-123-875-11	s	ELECT 10uF 20% 50V
C24	1-124-477-11	s	ELECT 47uF 20% 25V
C25	1-124-120-11	s	ELECT 220uF 20% 25V
C26	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C27	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C101	1-124-477-11	s	ELECT 47uF 20% 25V
C102	1-126-101-11	s	ELECT 100uF 20% 16V
C103	1-136-230-00	s	FILM 0.0022uF 3% 100V
C104	1-136-230-00	s	FILM 0.0022uF 3% 100V
C105	1-136-257-00	s	FILM 0.0039uF 3% 100V
C106	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C108	1-136-155-00	s	FILM 0.015uF 5% 50V
C110	1-136-169-00	s	FILM 0.22uF 5% 50V
C111	1-136-163-00	s	FILM 0.068uF 5% 50V
C113	1-130-339-00	s	FILM 0.0056uF 3% 100V
C114	1-136-153-00	s	FILM 0.01uF 5% 50V
C119	1-126-101-11	s	ELECT 100uF 20% 16V
C123	1-123-875-11	s	ELECT 10uF 20% 50V
C124	1-124-477-11	s	ELECT 47uF 20% 25V
C125	1-126-101-11	s	ELECT 100uF 20% 16V
C126	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C127	1-126-151-11	s	ELECT, NONPOLAR 4.7uF 20% 16V
C201	1-131-372-00	s	TANTALUM 15uF 10% 16V
C202	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C203	1-136-164-00	s	FILM 0.082uF 5% 50V
C204	1-131-372-00	s	TANTALUM 15uF 10% 16V
C205	1-131-363-00	s	TANTALUM 4.7uF 10% 20V
C206	1-136-153-00	s	FILM 0.01uF 5% 50V
C207	1-136-164-00	s	FILM 0.082uF 5% 50V
C210	1-124-477-11	s	ELECT 47uF 20% 25V
C211	1-124-477-11	s	ELECT 47uF 20% 25V
C212	1-124-902-00	s	ELECT 0.47uF 20% 50V
C213	1-124-927-11	s	ELECT 4.7uF 20% 100V
C214	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C215	1-124-927-11	s	ELECT 4.7uF 20% 100V
C216	1-126-101-11	s	ELECT 100uF 20% 16V
C218	1-126-176-11	s	ELECT 220uF 20% 10V
C301	1-131-404-00	s	TANTALUM, 0.22uF 20% 35V
C302	1-124-120-11	s	ELECT 220uF 20% 25V
C303	1-131-372-00	s	TANTALUM 15uF 10% 16V
C304	1-124-927-11	s	ELECT 4.7uF 20% 100V
C305	1-124-120-11	s	ELECT 220uF 20% 25V
C306	1-131-372-00	s	TANTALUM 15uF 10% 16V
C307	1-126-094-11	s	ELECT 4.7uF 20% 35V
C308	1-136-164-00	s	FILM 0.082uF 5% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C309	1-136-164-00	s	FILM 0.082uF 5% 50V
C310	1-136-168-00	s	FILM 0.18uF 5% 50V
C311	1-136-168-00	s	FILM 0.18uF 5% 50V
C312	1-136-168-00	s	FILM 0.18uF 5% 50V
C313	1-136-168-00	s	FILM 0.18uF 5% 50V
C316	1-136-153-00	s	FILM 0.01uF 5% 50V
C317	1-136-153-00	s	FILM 0.01uF 5% 50V
C318	1-124-589-11	s	ELECT 47uF 20% 16V
C319	1-124-589-11	s	ELECT 47uF 20% 16V
C320	1-124-589-11	s	ELECT 47uF 20% 16V
C321	1-124-589-11	s	ELECT 47uF 20% 16V
C322	1-124-589-11	s	ELECT 47uF 20% 16V
C323	1-124-589-11	s	ELECT 47uF 20% 16V
C324	1-124-589-11	s	ELECT 47uF 20% 16V
C325	1-124-589-11	s	ELECT 47uF 20% 16V
C326	1-124-589-11	s	ELECT 47uF 20% 16V
C327	1-124-589-11	s	ELECT 47uF 20% 16V
C328	1-124-589-11	s	ELECT 47uF 20% 16V
C329	1-124-589-11	s	ELECT 47uF 20% 16V
C330	1-124-589-11	s	ELECT 47uF 20% 16V
C331	1-124-589-11	s	ELECT 47uF 20% 16V
C332	1-124-589-11	s	ELECT 47uF 20% 16V
C333	1-124-589-11	s	ELECT 47uF 20% 16V
C334	1-124-589-11	s	ELECT 47uF 20% 16V
C335	1-124-589-11	s	ELECT 47uF 20% 16V
C336	1-124-589-11	s	ELECT 47uF 20% 16V
C337	1-124-589-11	s	ELECT 47uF 20% 16V
C338	1-126-157-11	s	ELECT 10uF 20% 16V
C339	1-124-234-00	s	ELECT 22uF 20% 16V
C340	1-126-157-11	s	ELECT 10uF 20% 16V
C341	1-124-234-00	s	ELECT 22uF 20% 16V
C342	1-124-234-00	s	ELECT 22uF 20% 16V
C343	1-126-157-11	s	ELECT 10uF 20% 16V
C344	1-124-234-00	s	ELECT 22uF 20% 16V
C345	1-126-157-11	s	ELECT 10uF 20% 16V
C346	1-126-094-11	s	ELECT 4.7uF 20% 35V
C347	1-123-875-11	s	ELECT 10uF 20% 50V
C348	1-126-101-11	s	ELECT 100uF 20% 16V
C349	1-123-875-11	s	ELECT 10uF 20% 50V
C350	1-126-157-11	s	ELECT 10uF 20% 16V
C351	1-123-875-11	s	ELECT 10uF 20% 50V
C352	1-136-153-00	s	FILM 0.01uF 5% 50V
C353	1-126-176-11	s	ELECT 220uF 20% 10V
C400	1-123-356-00	s	ELECT 10uF 20% 50V
C404	1-126-233-11	s	ELECT 22uF 20% 50V
C405	1-162-286-31	s	CERAMIC 220PF 10% 50V
C406	1-124-477-11	s	ELECT 47uF 20% 25V
C407	1-124-477-11	s	ELECT 47uF 20% 25V
C408	1-126-101-11	s	ELECT 100uF 20% 16V
C409	1-126-101-11	s	ELECT 100uF 20% 16V
C410	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C412	1-124-927-11	s	ELECT 4.7uF 20% 100V
C413	1-124-477-11	s	ELECT 47uF 20% 25V
C414	1-123-875-11	s	ELECT 10uF 20% 50V
C415	1-123-875-11	s	ELECT 10uF 20% 50V
C416	1-123-875-11	s	ELECT 10uF 20% 50V
C417	1-124-477-11	s	ELECT 47uF 20% 25V
C418	1-124-477-11	s	ELECT 47uF 20% 25V
C419	1-162-207-31	s	CERAMIC 22PF 5% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C420	1-124-477-11	s	ELECT 47uF 20% 25V
C421	1-161-327-00	s	CERAMIC 0.0033uF 30% 50V
C422	1-123-875-11	s	ELECT 10uF 20% 50V
C423	1-126-101-11	s	ELECT 100uF 20% 16V
C424	1-123-875-11	s	ELECT 10uF 20% 50V
C425	1-162-286-31	s	CERAMIC 220PF 10% 50V
C426	1-123-875-11	s	ELECT 10uF 20% 50V
C427	1-124-455-00	s	ELECT 100uF 20% 16V
C428	1-123-875-11	s	ELECT 10uF 20% 50V
C430	1-124-455-00	s	ELECT 100uF 20% 16V
C431	1-126-157-11	s	ELECT 10uF 20% 16V
C432	1-126-157-11	s	ELECT 10uF 20% 16V
C433	1-123-875-11	s	ELECT 10uF 20% 50V
C436	1-124-455-00	s	ELECT 100uF 20% 16V
C437	1-123-875-11	s	ELECT 10uF 20% 50V
C438	1-123-875-11	s	ELECT 10uF 20% 50V
C439	1-126-233-11	s	ELECT 22uF 20% 50V
C440	1-124-472-11	s	ELECT 470uF 20% 10V
C441	1-124-927-11	s	ELECT 4.7uF 20% 100V
C442	1-123-875-11	s	ELECT 10uF 20% 50V
C443	1-123-875-11	s	ELECT 10uF 20% 50V
C444	1-124-455-00	s	ELECT 100uF 20% 16V
C445	1-124-477-11	s	ELECT 47uF 20% 25V
CP1	1-236-010-11	s	FILTER, LOW-PASS
CP101	1-236-010-11	s	FILTER, LOW-PASS
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D201	8-729-105-68	s	TRANSISTOR 2SC3356-K
D202	8-719-911-19	s	DIODE 1SS119
D203	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-729-105-68	s	TRANSISTOR 2SC3356-K
D400	8-719-911-19	s	DIODE 1SS119
D401	8-719-101-97	s	DIODE 1SS97-1
D402	8-719-101-97	s	DIODE 1SS97-1
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D405	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-729-105-68	s	TRANSISTOR 2SC3356-K

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D411	8-729-105-68	s	TRANSISTOR 2SC3356-K
IC1	8-752-018-80	s	IC CX20188
IC2	8-759-981-90	s	IC RC4558DD
IC3	8-759-208-12	s	IC TC4016BPHB
IC102	8-759-981-90	s	IC RC4558DD
IC103	8-759-208-12	s	IC TC4016BPHB
IC201	8-759-340-13	s	IC HD14013BP
IC202	8-759-981-90	s	IC RC4558DD
IC203	8-759-240-71	s	IC TC4071BP
IC204	8-759-240-11	s	IC TC4011BP
IC205	8-759-240-11	s	IC TC4011BP
IC302	8-759-132-40	s	IC UPC324C
IC303	8-759-969-13	s	IC SN16913P
IC304	8-759-969-13	s	IC SN16913P
IC305	8-759-969-13	s	IC SN16913P
IC306	8-759-969-13	s	IC SN16913P
IC310	8-759-981-74	s	IC LM2904S
IC311	8-759-981-74	s	IC LM2904S
IC401	8-759-981-57	s	IC RC2043DD
IC402	8-759-981-64	s	IC LM2903DQ
IC403	8-759-922-36	s	IC CX20060
IC404	8-759-922-36	s	IC CX20060
IC405	8-759-982-02	s	IC RC4562DD
IC406	8-759-922-36	s	IC CX20060
IC407	8-759-922-36	s	IC CX20060
IC408	8-759-982-25	s	IC RC78L09A
Q1	8-729-900-65	s	TRANSISTOR DTA144ES
Q101	8-729-900-65	s	TRANSISTOR DTA144ES
Q201	8-729-900-89	s	TRANSISTOR DTC144ES
Q202	8-729-178-54	s	TRANSISTOR 2SC2785
Q203	8-729-178-54	s	TRANSISTOR 2SC2785
Q204	8-729-178-54	s	TRANSISTOR 2SC2785
Q205	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q206	8-729-900-65	s	TRANSISTOR DTA144ES
Q207	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q208	8-729-900-65	s	TRANSISTOR DTA144ES
Q301	8-729-900-89	s	TRANSISTOR DTC144ES
Q302	8-729-900-89	s	TRANSISTOR DTC144ES
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q304	8-729-900-89	s	TRANSISTOR DTC144ES
Q305	8-729-900-89	s	TRANSISTOR DTC144ES
Q306	8-729-173-38	s	TRANSISTOR 2SA733-K
Q307	8-729-173-38	s	TRANSISTOR 2SA733-K
Q308	8-729-173-38	s	TRANSISTOR 2SA733-K
Q309	8-729-173-38	s	TRANSISTOR 2SA733-K
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q402	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q403	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q405	8-729-178-54	s	TRANSISTOR 2SC2785
Q406	8-729-173-38	s	TRANSISTOR 2SA733-K
Q407	8-729-900-89	s	TRANSISTOR DTC144ES
Q408	8-729-178-54	s	TRANSISTOR 2SC2785
Q409	8-729-900-65	s	TRANSISTOR DTA144ES
Q410	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q411	8-729-178-54	s	TRANSISTOR 2SC2785
Q412	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q413	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q414	8-729-201-05	s	TRANSISTOR 2SC2878-B

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(NR-31 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q415	8-729-173-38	s	TRANSISTOR 2SA733-K
Q416	8-729-900-89	s	TRANSISTOR DTC144ES
Q417	8-729-178-54	s	TRANSISTOR 2SC2785
Q418	8-729-173-38	s	TRANSISTOR 2SA733-K
Q419	8-729-900-65	s	TRANSISTOR DTA144ES
R10	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-889-00	s	CARBON 270K 5% 1/4W
R21	1-247-889-00	s	CARBON 270K 5% 1/4W
R23	1-247-889-00	s	CARBON 270K 5% 1/4W
R24	1-247-889-00	s	CARBON 270K 5% 1/4W
R25	1-247-897-11	s	CARBON 560K 5% 1/4W
R26	1-247-903-00	s	CARBON 1M 5% 1/4W
R27	1-247-903-00	s	CARBON 1M 5% 1/4W
R28	1-247-903-00	s	CARBON 1M 5% 1/4W
R29	1-247-895-00	s	CARBON 470K 5% 1/4W
R30	1-247-883-00	s	CARBON 150K 5% 1/4W
R31	1-247-899-11	s	CARBON 680K 5% 1/4W
R110	1-247-903-00	s	CARBON 1M 5% 1/4W
R117	1-247-889-00	s	CARBON 270K 5% 1/4W
R121	1-247-889-00	s	CARBON 270K 5% 1/4W
R123	1-247-889-00	s	CARBON 270K 5% 1/4W
R124	1-247-889-00	s	CARBON 270K 5% 1/4W
R125	1-247-897-11	s	CARBON 560K 5% 1/4W
R126	1-247-903-00	s	CARBON 1M 5% 1/4W
R127	1-247-903-00	s	CARBON 1M 5% 1/4W
R128	1-247-903-00	s	CARBON 1M 5% 1/4W
R129	1-247-895-00	s	CARBON 470K 5% 1/4W
R130	1-247-883-00	s	CARBON 150K 5% 1/4W
R131	1-247-899-11	s	CARBON 680K 5% 1/4W
R231	1-247-887-00	s	CARBON 220K 5% 1/4W
R245	1-247-899-11	s	CARBON 680K 5% 1/4W
R318	1-247-885-00	s	CARBON 180K 5% 1/4W
R319	1-247-885-00	s	CARBON 180K 5% 1/4W
R322	1-247-895-00	s	CARBON 470K 5% 1/4W
R323	1-247-895-00	s	CARBON 470K 5% 1/4W
R339	1-247-881-00	s	CARBON 120K 5% 1/4W
R343	1-247-887-00	s	CARBON 220K 5% 1/4W
R345	1-247-903-00	s	CARBON 1M 5% 1/4W
R407	1-247-895-00	s	CARBON 470K 5% 1/4W
RV11	1-230-497-11	s	RES, ADJ, METAL 22K
RV111	1-230-497-11	s	RES, ADJ, METAL 22K
RV211	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV212	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV311	1-230-726-11	s	RES, ADJ, CARBON 470K
RV312	1-230-500-11	s	RES, ADJ, METAL 220K
RV313	1-230-497-11	s	RES, ADJ, METAL 22K
RV314	1-230-497-11	s	RES, ADJ, METAL 22K
RV315	1-230-718-11	s	RES, ADJ, CARBON 1K
RV316	1-230-718-11	s	RES, ADJ, CARBON 1K
RV317	1-230-497-11	s	RES, ADJ, METAL 22K
RV401	1-228-996-00	s	RES, ADJ, METAL 47K
RV402	1-228-995-00	s	RES, ADJ, METAL 22K

PD-40 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6725-569-A	o	MOUNTED CIRCUIT BOARD, PD-40
1pc	2-382-416-01	o	SUPPORT, PC
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-124-927-11	s	ELECT 4.7uF 20% 100V
C4	1-124-927-11	s	ELECT 4.7uF 20% 100V
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
D7	8-719-200-02	s	DIODE 10E2
D8	8-719-200-02	s	DIODE 10E2
D9	8-719-200-02	s	DIODE 10E2
D10	8-719-200-02	s	DIODE 10E2
D11	8-719-200-02	s	DIODE 10E2
D12	8-719-200-02	s	DIODE 10E2
D13	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785
Q6	8-729-889-40	s	TRANSISTOR 2SD894
Q7	8-729-199-82	s	TRANSISTOR 2SD998
Q8	8-729-811-11	s	TRANSISTOR 2SD1111
Q9	8-729-119-78	s	TRANSISTOR 2SC2785
Q10	8-729-199-82	s	TRANSISTOR 2SD998
Q11	8-729-811-11	s	TRANSISTOR 2SD1111
Q12	8-729-119-78	s	TRANSISTOR 2SC2785
Q13	8-729-119-78	s	TRANSISTOR 2SC2785
Q14	8-729-199-82	s	TRANSISTOR 2SD998
R6	⚠1-532-685-00	s	LINK, IC 0.8A
R12	⚠1-532-685-00	s	LINK, IC 0.8A
R19	⚠1-532-685-00	s	LINK, IC 0.8A
R25	⚠1-532-685-00	s	LINK, IC 0.8A
R30	⚠1-532-685-00	s	LINK, IC 0.8A

PD-41 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6725-570-A	o	MOUNTED CIRCUIT BOARD, PD-41
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
D1	8-719-200-02	s	DIODE 10E2
D2	8-719-200-02	s	DIODE 10E2
D3	8-719-200-02	s	DIODE 10E2
D4	8-719-200-02	s	DIODE 10E2
D5	8-719-200-02	s	DIODE 10E2
D6	8-719-200-02	s	DIODE 10E2
Q1	8-729-811-11	s	TRANSISTOR 2SD1111
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-889-40	s	TRANSISTOR 2SD894
Q4	8-729-811-11	s	TRANSISTOR 2SD1111
Q5	8-729-119-78	s	TRANSISTOR 2SC2785
Q6	8-729-889-40	s	TRANSISTOR 2SD894
R6	⚠1-532-685-00	s	LINK, IC 0.8A
R12	⚠1-532-685-00	s	LINK, IC 0.8A

PH-5 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-603-737-00	o	PRINTED CIRCUIT BOARD, PH-5
D1	8-719-905-58	s	DIODE EQA02-06F1
Q1	8-729-810-22	s	TRANSISTOR SPS102-B

PT-9 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-605-018-00	o	PRINTED CIRCUIT BOARD, PT-9
Q1	8-729-377-13	s	TRANSISTOR 2SA771-Y

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

PTC-30 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-260-11	o	PRINTED CIRCUIT BOARD, PTC-30
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC3	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52

PTC-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-638-11	o	PRINTED CIRCUIT BOARD, PTC-32
1pc	1-564-026-00	o	CONTACT, FEMALE, AWG26-30
C1	1-124-234-00	s	ELECT 22uF 20% 16V
IC1	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC2	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC3	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53
IC4	8-719-939-50	s	PHOTOINTERRUPTER GP-1L52
IC5	8-759-133-90	s	IC UPC339C

PTC-33 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-258-11	o	PRINTED CIRCUIT BOARD, PTC-33
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "THREAD END DET"
IC2	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "UNTHREAD END DET"

PTC-34 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-259-11	o	PRINTED CIRCUIT BOARD, PTC-34
IC1	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "FR UNTHREAD END DET"

PTC-35 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-622-218-11	o	PRINTED CIRCUIT BOARD, PTC-35
IC1A	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "TAKE-UP ROTATION DET"
IC1B	8-719-940-86	s	PHOTOINTERRUPTER GP-1L53 "SUPPLY ROTATION DET"

RM-39 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-618-873-11	o	PRINTED CIRCUIT BOARD, RM-39
C1	1-101-006-00	s	CERAMIC 0.047uF 50V
C2	1-101-006-00	s	CERAMIC 0.047uF 50V
L1	1-410-623-11	s	INDUCTOR 4.7uH
L2	1-410-623-11	s	INDUCTOR 4.7uH
M1006	8-835-178-01	s	MOTOR, DC FN30-T26N1E "REEL"

RM-66 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-561-655-00	s	CONNECTOR, D-SUB 9P, FEMALE
1pc	1-629-473-11	o	PRINTED CIRCUIT BOARD, RM-66
1pc	3-668-459-11	o	SCREW, CONNECTOR
1pc	3-668-460-00	o	SPRING
1pc	3-733-601-01	o	BRACKET, 9P

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

RP-40 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-036-A	o	MOUNTED CIRCUIT BOARD, RP-40
2pcs	7-682-903-11	s	SCREW +PWH 3X6
C1	1-124-120-11	s	ELECT 220uF 20% 25V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C4	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C7	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C8	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C9	1-124-589-11	s	ELECT 47uF 20% 16V
C10	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C14	1-126-160-11	s	ELECT 1uF 20% 50V
C15	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C17	1-124-589-11	s	ELECT 47uF 20% 16V
C20	1-126-160-11	s	ELECT 1uF 20% 50V
C21	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C22	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C23	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C101	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C102	1-124-589-11	s	ELECT 47uF 20% 16V
C105	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C106	1-162-725-11	s	CERAMIC 430PF 1% 50V
C107	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C108	1-124-589-11	s	ELECT 47uF 20% 16V
C110	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C111	1-162-725-11	s	CERAMIC 430PF 1% 50V
C120	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C121	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
CN183	1-506-471-11	o	CONNECTOR, 6P, MALE
CN186	1-506-471-11	s	CONNECTOR, 6P, MALE
CN187	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-109-60	s	DIODE RD2.7ES-B2
D4	8-719-911-19	s	DIODE 1SS119
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-911-19	s	DIODE 1SS119
D108	8-719-911-19	s	DIODE 1SS119
IC1	8-743-731-00	s	IC BX-373A
IC2	8-729-801-46	s	TRANSISTOR 2SC3064-F
IC3	8-741-126-50	s	IC BX-1265
IC4	8-759-240-09	s	IC TC4009UBP
IC5	8-729-801-46	s	TRANSISTOR 2SC3064-F
IC6	8-741-126-50	s	IC BX-1265
L1	1-410-482-31	s	INDUCTOR 100uH
L3	1-410-482-31	s	INDUCTOR 100uH
L4	1-410-482-31	s	INDUCTOR 100uH
L101	1-410-482-31	s	INDUCTOR 100uH
PS2	⚠1-532-727-11	s	LINK, IC 0.25A

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(RP-40 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q1	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q2	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q3	8-729-603-50	s	TRANSISTOR 2SC403SP
Q4	8-729-603-50	s	TRANSISTOR 2SC403SP
Q5	8-729-603-50	s	TRANSISTOR 2SC403SP
Q6	8-729-603-50	s	TRANSISTOR 2SC403SP
Q7	8-729-603-50	s	TRANSISTOR 2SC403SP
Q8	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q101	8-729-603-50	s	TRANSISTOR 2SC403SP
Q102	8-729-603-50	s	TRANSISTOR 2SC403SP
Q103	8-729-603-50	s	TRANSISTOR 2SC403SP
Q104	8-729-177-33	s	TRANSISTOR 2SD773-4
Q105	8-729-113-33	s	TRANSISTOR 2SB733-4
Q106	8-729-603-50	s	TRANSISTOR 2SC403SP
Q107	8-729-603-50	s	TRANSISTOR 2SC403SP
Q108	8-729-177-33	s	TRANSISTOR 2SD773-4
Q109	8-729-113-33	s	TRANSISTOR 2SB733-4
R1	1-249-404-00	s	CARBON 82 5% 1/4W
R2	1-249-404-00	s	CARBON 82 5% 1/4W
RV1	1-228-990-00	s	RES, ADJ, METAL 1K
RV3	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV4	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV5	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV6	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV7	1-228-990-00	s	RES, ADJ, METAL 1K
RV8	1-228-991-00	s	RES, ADJ, METAL 2.2K
RV101	1-228-990-00	s	RES, ADJ, METAL 1K
RV102	1-228-990-00	s	RES, ADJ, METAL 1K
T1	1-426-017-00	s	TRANSFORMER, AF
T2	1-427-472-00	s	TRANSFORMER, OUTPUT
T3	1-426-319-11	s	TRANSFORMER, PB RF
T4	1-427-472-00	s	TRANSFORMER, OUTPUT
T5	1-426-319-11	s	TRANSFORMER, PB RF

SE-46 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-618-599-11	o	PRINTED CIRCUIT BOARD, SE-46
PC1	1-806-232-21	s	DETECTOR MB-1102/SN

SV-112 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-037-A	o	MOUNTED CIRCUIT BOARD, SV-112
2pcs	2-371-561-00	s	BUSHING (P), INSULATING
2pcs	3-703-037-00	s	INSULATOR, TO-220
2pcs	7-682-648-09	s	SCREW +PS 3X8
4pcs	7-682-903-11	s	SCREW +PWH 3X6
C3	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C4	1-124-963-11	s	ELECT 33uF 20% 16V
C6	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C7	1-161-374-11	s	CERAMIC 0.0015uF 20% 50V
C9	1-124-925-11	s	ELECT 2.2uF 20% 100V
C10	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C12	1-161-329-00	s	CERAMIC 0.0068uF 30% 25V
C13	1-124-963-11	s	ELECT 33uF 20% 16V
C14	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C16	1-124-480-11	s	ELECT 470uF 20% 25V
C17	1-161-057-00	s	CERAMIC 0.033uF 10% 50V
C18	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C19	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C104	1-162-215-31	s	CERAMIC 47PF 5% 50V
C106	1-161-047-00	s	CERAMIC 0.0047uF 10% 50V
C107	1-124-477-11	s	ELECT 47uF 20% 25V
C108	1-123-875-11	s	ELECT 10uF 20% 50V
C109	1-124-910-11	s	ELECT 47uF 20% 50V
C110	1-124-910-11	s	ELECT 47uF 20% 50V
C111	1-161-042-00	s	CERAMIC 0.0018uF 10% 50V
C112	1-161-042-00	s	CERAMIC 0.0018uF 10% 50V
C116	1-162-286-31	s	CERAMIC 220PF 10% 50V
C120	1-162-288-31	s	CERAMIC 330PF 10% 50V
C301	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C302	1-161-040-00	s	CERAMIC 0.0012uF 10% 50V
C304	1-126-233-11	s	ELECT 22uF 20% 50V
C305	1-126-233-11	s	ELECT 22uF 20% 50V
C306	1-162-286-31	s	CERAMIC 220PF 10% 50V
C308	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C309	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C312	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C313	1-123-875-11	s	ELECT 10uF 20% 50V
C402	1-124-902-00	s	ELECT 0.47uF 20% 50V
C404	1-124-902-00	s	ELECT 0.47uF 20% 50V
C406	1-124-902-00	s	ELECT 0.47uF 20% 50V
C408	1-124-443-00	s	ELECT 100uF 20% 10V
C409	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C410	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C411	1-162-207-31	s	CERAMIC 22PF 5% 50V
C412	1-162-282-31	s	CERAMIC 100PF 10% 50V
C413	1-162-284-31	s	CERAMIC 150PF 10% 50V
C414	1-124-477-11	s	ELECT 47uF 20% 25V
C415	1-124-963-11	s	ELECT 33uF 20% 16V
C418	1-162-282-31	s	CERAMIC 100PF 10% 50V
C422	1-124-464-11	s	ELECT 0.22uF 20% 50V
C423	1-162-288-31	s	CERAMIC 330PF 10% 50V
C424	1-123-875-11	s	ELECT 10uF 20% 50V
C425	1-124-925-11	s	ELECT 2.2uF 20% 100V
C426	1-124-925-11	s	ELECT 2.2uF 20% 100V
C429	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C430	1-124-463-00	s	ELECT 0.1uF 20% 50V
C432	1-124-120-11	s	ELECT 220uF 20% 25V
C433	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C434	1-124-120-11	s	ELECT 220uF 20% 25V

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C501	1-124-477-11	s	ELECT 47uF 20% 25V
C503	1-123-875-11	s	ELECT 10uF 20% 50V
C504	1-124-902-00	s	ELECT 0.47uF 20% 50V
C505	1-124-120-11	s	ELECT 220uF 20% 25V
C507	1-162-290-31	s	CERAMIC 470PF 10% 50V
C701	1-124-477-11	s	ELECT 47uF 20% 25V
C702	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C703	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C704	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C705	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C706	1-124-119-00	s	ELECT 330uF 20% 16V
C707	1-124-477-11	s	ELECT 47uF 20% 25V
C709	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C711	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C712	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C714	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C716	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C717	1-124-477-11	s	ELECT 47uF 20% 25V
C718	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C853	1-124-252-00	s	ELECT 0.33uF 20% 50V
C900	1-124-463-00	s	ELECT 0.1uF 20% 50V
C901	1-162-290-31	s	CERAMIC 470PF 10% 50V
C904	1-123-875-11	s	ELECT 10uF 20% 50V
C906	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C911	1-123-875-11	s	ELECT 10uF 20% 50V
C912	1-124-477-11	s	ELECT 47uF 20% 25V
C913	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C914	1-126-157-11	s	ELECT 10uF 20% 16V
C915	1-162-210-31	s	CERAMIC 30PF 5% 50V
C916	1-162-210-31	s	CERAMIC 30PF 5% 50V
C917	1-162-290-31	s	CERAMIC 470PF 10% 50V
C918	1-124-910-11	s	ELECT 47uF 20% 50V
C919	1-162-286-31	s	CERAMIC 220PF 10% 50V
C920	1-162-286-31	s	CERAMIC 220PF 10% 50V
C921	1-162-282-31	s	CERAMIC 100PF 10% 50V
C922	1-162-282-31	s	CERAMIC 100PF 10% 50V
CN410	1-506-471-11	s	CONNECTOR, 6P, MALE
D1	8-719-911-19	s	DIODE 1SS119
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D7	8-719-911-55	s	DIODE U05G
D101	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-911-19	s	DIODE 1SS119
D105	8-719-911-19	s	DIODE 1SS119
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-911-19	s	DIODE 1SS119
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D112	8-719-911-19	s	DIODE 1SS119
D113	8-719-911-19	s	DIODE 1SS119
D202	8-719-911-19	s	DIODE 1SS119
D204	8-719-911-19	s	DIODE 1SS119
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D207	8-719-911-19	s	DIODE 1SS119

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D208	8-719-911-19	s	DIODE 1SS119
D210	8-719-109-63	s	DIODE RD3.0ESB2
D211	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-911-19	s	DIODE 1SS119
D406	8-719-911-19	s	DIODE 1SS119
D407	8-719-911-19	s	DIODE 1SS119
D408	8-719-911-19	s	DIODE 1SS119
D409	8-719-911-19	s	DIODE 1SS119
D410	8-719-911-19	s	DIODE 1SS119
D411	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D600	8-719-911-19	s	DIODE 1SS119
D850	8-719-911-19	s	DIODE 1SS119
D851	8-719-911-19	s	DIODE 1SS119
D852	8-719-911-19	s	DIODE 1SS119
D853	8-719-911-19	s	DIODE 1SS119
D866	8-719-911-19	s	DIODE 1SS119
D870	8-719-911-19	s	DIODE 1SS119
D902	8-719-911-19	s	DIODE 1SS119
D903	8-719-911-19	s	DIODE 1SS119
D904	8-719-911-19	s	DIODE 1SS119
D905	8-719-911-19	s	DIODE 1SS119
D906	8-719-911-19	s	DIODE 1SS119
D907	8-719-911-19	s	DIODE 1SS119
D910	8-719-911-19	s	DIODE 1SS119
D912	8-719-911-19	s	DIODE 1SS119
D913	8-719-911-19	s	DIODE 1SS119
D914	8-719-911-19	s	DIODE 1SS119
D915	8-719-911-19	s	DIODE 1SS119
D916	8-719-911-19	s	DIODE 1SS119
D917	8-719-911-19	s	DIODE 1SS119
D919	8-719-911-19	s	DIODE 1SS119
D920	8-719-911-19	s	DIODE 1SS119
D921	8-719-911-19	s	DIODE 1SS119
D922	8-719-911-19	s	DIODE 1SS119
D923	8-719-911-19	s	DIODE 1SS119
D990	8-719-101-97	s	DIODE 1SS97-1
IC1	8-759-132-40	s	IC UPC324C
IC2	8-759-981-95	s	IC RC4558S
IC3	8-759-981-90	s	IC RC4558DD
IC4	8-759-240-81	s	IC TC4081BP
IC5	8-759-208-10	s	IC TC4053BPHB
IC8	8-759-132-40	s	IC UPC324C
IC9	8-759-132-40	s	IC UPC324C
IC10	8-759-133-90	s	IC UPC339C
IC12	8-759-135-80	s	IC UPC358C
IC13	8-759-208-10	s	IC TC4053BPHB
IC15	8-759-200-01	s	IC TC4001UBP
IC16	8-759-208-10	s	IC TC4053BPHB
IC17	8-751-941-03	s	IC CX-194B
IC18	8-759-984-94	s	IC MB88P505H-101PG5110
IC19	8-759-207-73	s	IC TC4030BPHB
IC20	8-759-208-10	s	IC TC4053BPHB

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC21	8-743-915-10	s	IC BX3915A
IC22	8-759-135-80	s	IC UPC358C
IC850	8-759-345-38	s	IC HD14538BP
IC851	8-759-345-38	s	IC HD14538BP
IC852	8-759-240-15	s	IC TC4015BP
IC853	8-759-240-69	s	IC TC4069UBP
IC854	8-759-345-38	s	IC HD14538BP
IC902	8-759-240-69	s	IC TC4069UBP
IC903	1-464-259-12	s	CORRECTION UNIT, SWITCHING
IC906	8-759-240-69	s	IC TC4069UBP
IC907	8-759-984-95	s	IC MB88201H-652M
IC908	8-759-910-43	s	IC CX23028
PS1	⚠1-532-685-00	s	LINK, IC 0.8A
Q1	8-729-119-78	s	TRANSISTOR 2SC2785
Q2	8-729-173-38	s	TRANSISTOR 2SA733-K
Q3	8-729-376-84	s	TRANSISTOR 2SA768-G
Q4	8-729-804-92	s	TRANSISTOR 2SD1682-T
Q5	8-729-177-42	s	TRANSISTOR 2SD774-3
Q101	8-729-900-83	s	TRANSISTOR DTC124XS
Q102	8-729-119-78	s	TRANSISTOR 2SC2785
Q103	8-729-900-83	s	TRANSISTOR DTC124XS
Q104	8-729-173-38	s	TRANSISTOR 2SA733-K
Q106	8-729-119-78	s	TRANSISTOR 2SC2785
Q107	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q108	8-729-900-83	s	TRANSISTOR DTC124XS
Q109	8-729-900-89	s	TRANSISTOR DTC144ES
Q110	8-729-119-78	s	TRANSISTOR 2SC2785
Q111	8-729-376-84	s	TRANSISTOR 2SA768-G
Q112	8-729-173-38	s	TRANSISTOR 2SA733-K
Q113	8-729-804-92	s	TRANSISTOR 2SD1682-T
Q114	8-729-900-67	s	TRANSISTOR DTA124XS
Q201	8-729-900-83	s	TRANSISTOR DTC124XS
Q202	8-729-900-83	s	TRANSISTOR DTC124XS
Q203	8-729-900-83	s	TRANSISTOR DTC124XS
Q204	8-729-900-83	s	TRANSISTOR DTC124XS
Q206	8-729-900-83	s	TRANSISTOR DTC124XS
Q301	8-729-119-78	s	TRANSISTOR 2SC2785
Q302	8-729-119-78	s	TRANSISTOR 2SC2785
Q303	8-729-119-78	s	TRANSISTOR 2SC2785
Q304	8-729-119-78	s	TRANSISTOR 2SC2785
Q305	8-729-900-83	s	TRANSISTOR DTC124XS
Q401	8-729-119-78	s	TRANSISTOR 2SC2785
Q403	8-729-119-78	s	TRANSISTOR 2SC2785
Q404	8-729-119-78	s	TRANSISTOR 2SC2785
Q408	8-729-603-50	s	TRANSISTOR 2SC403SP
Q410	8-729-900-67	s	TRANSISTOR DTA124XS
Q411	8-729-119-78	s	TRANSISTOR 2SC2785
Q412	8-729-119-78	s	TRANSISTOR 2SC2785
Q850	8-729-900-89	s	TRANSISTOR DTC144ES
Q851	8-729-900-36	s	TRANSISTOR DTC124ES
Q852	8-729-900-89	s	TRANSISTOR DTC144ES
Q854	8-729-900-36	s	TRANSISTOR DTC124ES
Q855	8-729-119-78	s	TRANSISTOR 2SC2785
Q856	8-729-900-36	s	TRANSISTOR DTC124ES
Q857	8-729-900-89	s	TRANSISTOR DTC144ES
Q900	8-729-119-78	s	TRANSISTOR 2SC2785
Q901	8-729-119-78	s	TRANSISTOR 2SC2785
Q902	8-729-119-78	s	TRANSISTOR 2SC2785

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q903	8-729-119-78	s	TRANSISTOR 2SC2785
Q905	8-729-603-50	s	TRANSISTOR 2SC403SP
Q906	8-729-900-89	s	TRANSISTOR DTC144ES
Q907	8-729-900-89	s	TRANSISTOR DTC144ES
Q908	8-729-119-78	s	TRANSISTOR 2SC2785
Q909	8-729-900-89	s	TRANSISTOR DTC144ES
Q911	8-729-119-78	s	TRANSISTOR 2SC2785
Q912	8-729-201-05	s	TRANSISTOR 2SC2878-B
Q913	8-729-600-24	s	TRANSISTOR 2SC403SP-51
Q914	8-729-173-38	s	TRANSISTOR 2SA733-K
Q915	8-729-900-89	s	TRANSISTOR DTC144ES
R12	1-247-895-00	s	CARBON 470K 5% 1/4W
R13	1-247-881-00	s	CARBON 120K 5% 1/4W
R14	1-247-903-00	s	CARBON 1M 5% 1/4W
R15	1-247-903-00	s	CARBON 1M 5% 1/4W
R17	1-247-895-00	s	CARBON 470K 5% 1/4W
R35	1-247-891-00	s	CARBON 330K 5% 1/4W
R42	⚠1-207-621-00	s	WIREWOUND 1.5 10% 3W
R111	1-247-893-11	s	CARBON 390K 5% 1/4W
R125	1-247-887-00	s	CARBON 220K 5% 1/4W
R147	1-247-895-00	s	CARBON 470K 5% 1/4W
R150	1-247-903-00	s	CARBON 1M 5% 1/4W
R151	1-247-891-00	s	CARBON 330K 5% 1/4W
R162	1-247-895-00	s	CARBON 470K 5% 1/4W
R172	1-247-891-00	s	CARBON 330K 5% 1/4W
R175	1-247-903-00	s	CARBON 1M 5% 1/4W
R176	1-247-887-00	s	CARBON 220K 5% 1/4W
R178	1-247-895-00	s	CARBON 470K 5% 1/4W
R223	1-247-897-11	s	CARBON 560K 5% 1/4W
R224	1-247-897-11	s	CARBON 560K 5% 1/4W
R260	1-247-895-00	s	CARBON 470K 5% 1/4W
R305	1-247-903-00	s	CARBON 1M 5% 1/4W
R306	1-247-895-00	s	CARBON 470K 5% 1/4W
R310	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	1-247-895-00	s	CARBON 470K 5% 1/4W
R315	1-247-903-00	s	CARBON 1M 5% 1/4W
R326	1-247-883-00	s	CARBON 150K 5% 1/4W
R328	1-247-903-00	s	CARBON 1M 5% 1/4W
R414	1-247-744-11	s	CARBON 270 5% 1/2W
R426	1-247-895-00	s	CARBON 470K 5% 1/4W
R432	1-247-903-00	s	CARBON 1M 5% 1/4W
R433	1-247-889-00	s	CARBON 270K 5% 1/4W
R461	⚠1-207-636-11	s	WIREWOUND 100 10% 3W
R759	1-247-883-00	s	CARBON 150K 5% 1/4W
R855	1-247-892-11	s	CARBON 360K 5% 1/4W
R856	1-247-860-11	s	CARBON 16K 5% 1/4W
R857	1-247-903-00	s	CARBON 1M 5% 1/4W
R858	1-247-903-00	s	CARBON 1M 5% 1/4W
R866	1-247-893-11	s	CARBON 390K 5% 1/4W
R867	1-247-893-11	s	CARBON 390K 5% 1/4W
R873	1-247-903-00	s	CARBON 1M 5% 1/4W
R876	1-247-903-00	s	CARBON 1M 5% 1/4W
R892	1-247-848-11	s	CARBON 5.1K 5% 1/4W
R917	1-247-901-11	s	CARBON 820K 5% 1/4
R928	1-247-899-11	s	CARBON 680K 5% 1/4W
R929	1-247-899-11	s	CARBON 680K 5% 1/4W
R961	1-247-903-00	s	CARBON 1M 5% 1/4W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SV-112 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV1	1-228-994-00	s	RES, ADJ, METAL 10K
RV2	1-228-990-00	s	RES, ADJ, METAL 1K
RV100	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV101	1-228-994-00	s	RES, ADJ, METAL 10K
RV102	1-228-994-00	s	RES, ADJ, METAL 10K
RV106	1-228-993-00	s	RES, ADJ, METAL 4.7K
RV107	1-228-995-00	s	RES, ADJ, METAL 22K
RV201	1-228-990-00	s	RES, ADJ, METAL 1K
RV402	1-228-996-00	s	RES, ADJ, METAL 47K
RV404	1-228-996-00	s	RES, ADJ, METAL 47K
RV405	1-228-996-00	s	RES, ADJ, METAL 47K
RV406	1-228-997-00	s	RES, ADJ, METAL 100K
RV850	1-228-999-00	s	RES, ADJ, METAL 470K
RV851	1-228-996-00	s	RES, ADJ, METAL 47K
RV853	1-228-999-00	s	RES, ADJ, METAL 470K
RV854	1-228-999-00	s	RES, ADJ, METAL 470K
RV900	1-228-996-00	s	RES, ADJ, METAL 47K
X1	1-567-859-11	s	CRYSTAL, 3.579545MHz
X2	1-567-962-11	s	CRYSTAL 8.000000MHz
X3	1-567-132-00	s	RESONATOR, CERAMIC 8.00MHz

SW-315 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6729-839-A	o	MOUNTED CIECUIT BOARD, SW-315
CN917	1-506-471-11	o	CONNECTOR, 6P, MALE
D1	8-719-802-24	s	DIODE TLUY154
D2	8-719-802-24	s	DIODE TLUY154
D3	8-719-802-11	s	LED TLUG154, GRN
D4	8-719-802-11	s	LED TLUG154, GRN
D5	8-719-802-24	s	DIODE TLUY154
D7	8-719-110-03	s	DIODE RD7.5ES-B2
Q1	8-729-119-78	s	TRANSISTOR 2SC2785
Q2	8-729-119-78	s	TRANSISTOR 2SC2785
Q3	8-729-119-76	s	TRANSISTOR 2SA1175
S1	1-516-963-00	s	SWITCH, LEVER SLIDE
S2	1-571-116-11	s	SWITCH, LEVER SLIDE
S3	1-516-995-00	s	SWITCH, LEVER SLIDE
S4	1-571-116-11	s	SWITCH, LEVER SLIDE
S6	1-571-116-11	s	SWITCH, LEVER SLIDE

SY-141 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠A-6727-038-A	o	MOUNTED CIRCUIT BOARD, SY-141
1pc	2-371-561-00	s	BUSHING (P), INSULATING
1pc	3-703-037-00	s	INSULATOR, TO-220
1pc	7-682-650-09	s	SCREW +PS 3X12
1pc	7-684-023-04	s	N 3, TYPE 2
6pcs	7-682-903-11	s	SCREW +PWH 3X6
C4	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C5	1-124-589-11	s	ELECT 47uF 20% 16V
C6	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C7	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C8	1-126-160-11	s	ELECT 1uF 20% 50V
C9	1-124-248-00	s	ELECT 22uF 20% 35V
C10	1-124-589-11	s	ELECT 47uF 20% 16V
C11	1-126-163-11	s	ELECT 4.7uF 20% 50V
C14	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C15	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C16	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C19	1-124-589-11	s	ELECT 47uF 20% 16V
C20	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C21	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C31	1-102-973-00	s	CERAMIC 100PF 5% 50V
C48	1-162-207-31	s	CERAMIC 22PF 5% 50V
C49	1-162-207-31	s	CERAMIC 22PF 5% 50V
C101	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C102	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C302	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C304	1-162-210-31	s	CERAMIC 30PF 5% 50V
C305	1-162-210-31	s	CERAMIC 30PF 5% 50V
C306	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C307	1-124-465-00	s	ELECT 0.47uF 20% 50V
C310	1-124-589-11	s	ELECT 47uF 20% 16V
C311	1-126-160-11	s	ELECT 1uF 20% 50V
C312	1-124-589-11	s	ELECT 47uF 20% 16V
C313	1-126-101-11	s	ELECT 100uF 20% 16V
C314	1-162-286-31	s	CERAMIC 220PF 10% 50V
C315	1-161-020-11	s	CERAMIC 0.039uF 10% 25V
C317	1-126-160-11	s	ELECT 1uF 20% 50V
C318	1-131-358-00	s	TANTALUM 6.8uF 10% 25V
C327	1-126-160-11	s	ELECT 1uF 20% 50V
C328	1-124-261-00	s	ELECT 10uF 20% 50V
C329	1-124-589-11	s	ELECT 47uF 20% 16V
C330	1-126-160-11	s	ELECT 1uF 20% 50V
C335	1-162-215-31	s	CERAMIC 47PF 5% 50V
C407	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C410	1-162-282-31	s	CERAMIC 100PF 10% 50V
C411	1-102-824-00	s	CERAMIC 470PF 5% 50V
C501	1-126-101-11	s	ELECT 100uF 20% 16V
C502	1-161-055-00	s	CERAMIC 0.022uF 10% 50V
C503	1-126-101-11	s	ELECT 100uF 20% 16V
C504	1-126-101-11	s	ELECT 100uF 20% 16V
C505	1-126-101-11	s	ELECT 100uF 20% 16V
C506	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C507	1-161-041-00	s	CERAMIC 0.0015uF 10% 50V
C508	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C509	1-124-248-00	s	ELECT 22uF 20% 35V
C510	1-124-248-00	s	ELECT 22uF 20% 35V
C511	1-124-261-00	s	ELECT 10uF 20% 50V
C512	1-162-286-31	s	CERAMIC 220PF 10% 50V

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C513	1-162-282-31	s	CERAMIC 100PF 10% 50V
C514	1-162-282-31	s	CERAMIC 100PF 10% 50V
C516	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
CN517	1-506-471-11	o	CONNECTOR, 6P, MALE
CN520	1-506-471-11	s	CONNECTOR, 6P, MALE
CNI2	1-526-659-00	s	SOCKET, IC 28P
CV401	1-141-337-11	s	CAP, TRIMMER 20PF
D2	8-719-911-19	s	DIODE 1SS119
D3	8-719-911-19	s	DIODE 1SS119
D4	8-719-911-19	s	DIODE 1SS119
D5	8-719-911-19	s	DIODE 1SS119
D6	8-719-911-19	s	DIODE 1SS119
D10	8-719-911-19	s	DIODE 1SS119
D11	8-719-911-19	s	DIODE 1SS119
D12	8-719-911-19	s	DIODE 1SS119
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-719-911-19	s	DIODE 1SS119
D308	8-719-911-19	s	DIODE 1SS119
D309	8-719-911-19	s	DIODE 1SS119
D310	8-719-911-19	s	DIODE 1SS119
D311	8-719-911-19	s	DIODE 1SS119
D312	8-719-911-19	s	DIODE 1SS119
D313	8-719-911-19	s	DIODE 1SS119
D314	8-719-911-19	s	DIODE 1SS119
D315	8-719-911-19	s	DIODE 1SS119
D316	8-719-911-19	s	DIODE 1SS119
D317	8-719-911-19	s	DIODE 1SS119
D320	8-719-911-19	s	DIODE 1SS119
D321	8-719-911-19	s	DIODE 1SS119
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-911-55	s	DIODE U05G
D510	8-719-911-19	s	DIODE 1SS119
F600	⚠1-532-769-21	s	FUSE 0.2A 125V
IC1	8-759-208-85	s	IC TMPZ84C011AF
IC2	--PENDING---	s	IC MBM27C256A-25CZ
IC3	8-752-328-10	s	IC CXK5864BP-10L
IC4	8-752-323-26	s	IC CXK1009P
IC5	8-759-916-84	s	IC LH0084A
IC6	8-759-938-68	s	IC CXD1095Q
IC8	8-759-345-38	s	IC HD14538BP
IC9	8-759-202-74	s	IC TC74HC04P
IC10	8-759-917-46	s	IC 74F11PC
IC11	8-759-004-64	s	IC MC74HC126N
IC12	8-759-008-57	s	IC MC34051P
IC13	8-759-202-21	s	IC TC74HC32P
IC14	8-759-202-89	s	IC TC74HC139P
IC17	8-759-904-83	s	IC 74F32PC
IC18	8-759-916-20	s	IC SN74HC14N
IC101	8-759-145-58	s	IC UPC4558C

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC102	8-759-145-58	s	IC UPC4558C
IC103	8-759-240-53	s	IC TC4053BP
IC104	8-759-240-69	s	IC TC4069UBP
IC105	8-759-340-13	s	IC HD14013BP
IC301	8-759-240-69	s	IC TC4069UBP
IC302	8-759-202-14	s	IC TC74HC08P
IC303	8-759-345-38	s	IC HD14538BP
IC304	8-759-135-80	s	IC UPC358C
IC305	8-759-600-24	s	IC M54543L
IC306	8-759-600-24	s	IC M54543L
IC307	8-759-984-90	s	IC MB88P551H-201PFG5090
IC311	8-759-240-69	s	IC TC4069UBP
IC315	8-759-145-58	s	IC UPC4558C
IC316	8-759-981-64	s	IC LM2903DQ
IC318	8-759-240-69	s	IC TC4069UBP
IC401	8-759-202-74	s	IC TC74HC04P
IC403	8-759-345-38	s	IC HD14538BP
IC404	8-759-916-29	s	IC SN74HC74N
IC405	8-759-908-23	s	IC MB88303
PS503	⚠1-532-679-00	s	LINK, IC 0.6A
PS504	⚠1-532-685-00	s	LINK, IC 0.8A
PS601	⚠1-532-675-00	s	LINK, IC 1.5A
Q2	8-729-900-65	s	TRANSISTOR DTA144ES
Q3	8-729-900-89	s	TRANSISTOR DTC144ES
Q4	8-729-900-89	s	TRANSISTOR DTC144ES
Q5	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q6	8-729-281-52	s	TRANSISTOR 2SC1815-Y
Q301	8-729-177-42	s	TRANSISTOR 2SD774-3
Q302	8-729-119-78	s	TRANSISTOR 2SC2785
Q303	8-729-889-40	s	TRANSISTOR 2SD894
Q304	8-729-119-78	s	TRANSISTOR 2SC2785
Q305	8-729-119-78	s	TRANSISTOR 2SC2785
Q306	8-729-119-78	s	TRANSISTOR 2SC2785
Q307	8-729-119-78	s	TRANSISTOR 2SC2785
Q308	8-729-119-78	s	TRANSISTOR 2SC2785
Q309	8-729-900-89	s	TRANSISTOR DTC144ES
Q310	8-729-119-76	s	TRANSISTOR 2SA1175
Q311	8-729-900-89	s	TRANSISTOR DTC144ES
Q312	8-729-119-76	s	TRANSISTOR 2SA1175
Q313	8-729-900-89	s	TRANSISTOR DTC144ES
Q314	8-729-900-89	s	TRANSISTOR DTC144ES
Q315	8-729-119-78	s	TRANSISTOR 2SC2785
Q316	8-729-119-78	s	TRANSISTOR 2SC2785
Q317	8-729-900-89	s	TRANSISTOR DTC144ES
Q318	8-729-900-89	s	TRANSISTOR DTC144ES
Q319	8-729-900-89	s	TRANSISTOR DTC144ES
Q336	8-729-900-89	s	TRANSISTOR DTC144ES
Q337	8-729-900-89	s	TRANSISTOR DTC144ES
Q341	8-729-811-11	s	TRANSISTOR 2SD1111
Q342	8-729-119-78	s	TRANSISTOR 2SC2785
Q401	8-729-900-89	s	TRANSISTOR DTC144ES
Q501	8-729-382-64	s	TRANSISTOR 2SC1826-G
R8	1-247-881-00	s	CARBON 120K 5% 1/4W
R11	1-247-903-00	s	CARBON 1M 5% 1/4W
R311	⚠1-207-674-00	s	WIREWOUND 0.68 10% 4W
R320	1-247-883-00	s	CARBON 150K 5% 1/4W
R321	1-247-882-11	s	CARBON 130K 5% 1/4W
R325	1-247-891-00	s	CARBON 330K 5% 1/4W

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(SY-141 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R327	1-247-887-00	s	CARBON 220K 5% 1/4W
R332	1-247-891-00	s	CARBON 330K 5% 1/4W
R344	1-247-887-00	s	CARBON 220K 5% 1/4W
R347	1-247-887-00	s	CARBON 220K 5% 1/4W
R359	1-247-881-00	s	CARBON 120K 5% 1/4W
R360	1-247-881-00	s	CARBON 120K 5% 1/4W
R509	1-247-903-00	s	CARBON 1M 5% 1/4W
R510	1-247-895-00	s	CARBON 470K 5% 1/4W
R515	1-247-903-00	s	CARBON 1M 5% 1/4W
R516	1-247-895-00	s	CARBON 470K 5% 1/4W
R526	1-247-903-00	s	CARBON 1M 5% 1/4W
RB3	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB6	1-235-109-00	s	RESISTOR BLOCK 22Kx8
RB7	1-235-109-00	s	RESISTOR BLOCK 22Kx8
RB10	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RB11	1-231-410-00	s	RESISTOR BLOCK 10Kx8
RV1	1-230-497-11	s	RES, ADJ, METAL 22K
RV2	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV3	1-230-720-11	s	RES, ADJ, CARBON 4.7K
RV4	1-230-497-11	s	RES, ADJ, METAL 22K
X1	1-567-870-11	s	RESONATOR, CERAMIC 614KHz
X302	1-567-132-00	s	RESONATOR, CERAMIC 8.00MHz

TG-22 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-618-597-11	o	PRINTED CIRCUIT BOARD, TG-22
D1	8-719-905-56	s	LED EBR5504S, RED

UR-01

Ref. No. or Q'ty	Part No.	SP	Description
	⚠1-413-069-00	o	REGULATOR, SWITCHING UR-01
			This board is composed of PW-67 and PW-68 boards.
	1-604-137-00	o	PRINTED CIRCUIT BOARD, PW-67
C101	1-130-398-00	s	FILM 0.0012uF 10% 600V
C102	⚠1-130-610-00	s	FILM 0.01uF 2% 400V
C103	⚠1-161-746-00	s	CERAMIC 0.001uF 10% 125V
C104	⚠1-161-746-00	s	CERAMIC 0.001uF 10% 125V
C106	1-106-347-00	s	FILM 0.0015uF 5% 200V
C107	1-130-579-00	s	FILM 0.01uF 10% 630V
C108	1-125-240-00	s	ELECT 470 20% 200V
C109	1-125-240-00	s	ELECT 470 20% 200V
C110	1-123-659-00	s	ELECT 4.7uF 20% 250V
C111	1-123-659-00	s	ELECT 4.7uF 20% 250V
C112	1-126-103-11	s	ELECT 470uF 20% 16V
C113	1-123-381-00	s	ELECT 2.2uF 20% 100V
C201	1-106-347-00	s	FILM 0.0015uF 5% 200V
C202	1-108-680-11	s	FILM 0.001uF 10% 200V
C203	1-108-680-11	s	FILM 0.001uF 10% 200V
C207	1-106-351-00	s	FILM 0.0022uF 5% 200V
C208	1-123-663-00	s	ELECT 220uF 20% 6.3V
C209	1-123-326-00	s	ELECT 3300uF 20% 16V
C210	1-123-326-00	s	ELECT 3300uF 20% 16V
C211	1-123-326-00	s	ELECT 3300uF 20% 16V
C113	1-123-381-00	s	ELECT 2.2uF 20% 100V
CN101	1-560-437-00	s	CONNECTOR, VASE 4P, MALE "AC IN"
CN201	1-560-438-00	s	CONNECTOR, VASE 5P, MALE "OUT"
CN201	1-560-036-00	s	JACK, PIN 6P, MALE "CN TO CN"
D101	8-719-108-08	s	DIODE AC03FGMAY
D102	8-719-911-55	s	DIODE U05G
D103	8-719-911-55	s	DIODE U05G
D104	8-719-900-95	s	DIODE V09G
D105	8-719-110-08	s	DIODE RD8.2ESB2
D106	8-719-109-93	s	DIODE RD6.2ESB2
D107	8-719-815-85	s	DIODE 1S1585
D108	8-719-815-85	s	DIODE 1S1585
D201	8-719-908-00	s	DIODE ESAC33-02CS
D202	8-719-908-00	s	DIODE ESAC33-02CS
D203	8-719-908-00	s	DIODE ESAC33-02CS
D204	8-719-200-02	s	DIODE 10E2
D205	8-719-110-41	s	DIODE RD15ES-B2
D206	8-719-923-48	s	DIODE 1S2348H
F101	⚠1-532-603-21	s	FUSE 2.5A 250V
L101	⚠1-459-215-00	s	COIL
L102	⚠1-459-215-00	s	COIL
L201	1-421-398-12	s	COIL, CHOKE
L202	1-421-431-00	s	COIL, CHOKE
L203	1-421-370-00	s	COIL, CHOKE
Q101	8-729-962-52	s	TRANSISTOR 2SC2625-B
Q102	8-729-962-52	s	TRANSISTOR 2SC2625-B
Q103	8-729-225-34	s	TRANSISTOR 2SC2534
Q104	8-729-177-43	s	TRANSISTOR 2SD774
Q201	8-729-331-53	s	TRANSISTOR 2SC2315
R101	⚠1-205-622-00	s	WIREWOUND 33 5% 5W
R102	⚠1-205-711-11	s	WIREWOUND 15 5% 5W
R103	1-244-933-00	s	CARBON 330K 5% 1/2W
R104	1-244-933-00	s	CARBON 330K 5% 1/2W
R105	1-202-727-00	s	COMP 4.7M 10% 1/2W

(UR-01)

Ref. No. or Q'ty	Part No.	SP	Description
R106	1-247-704-11	s	CARBON 220 5% 1/4W
R107	⚠1-247-090-00	s	CARBON 20 5% 1/4W
R108	⚠1-247-090-00	s	CARBON 20 5% 1/4W
R109	⚠1-247-692-11	s	CARBON 22 5% 1/4W
R109	⚠1-247-691-11	s	CARBON 18 5% 1/4W
R110	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R111	1-246-530-00	s	CARBON 240K 5% 1/4W
R113	⚠1-247-123-00	s	CARBON 470 5% 1/4W
R114	1-249-468-11	s	CARBON 82K 5% 1/4W
R115	⚠1-247-123-00	s	CARBON 470 5% 1/4W
R201	⚠1-205-622-00	s	WIREWOUND 33 5% 5W
R202	⚠1-205-627-00	s	WIREWOUND 0.01 5% 5W
R203	1-247-733-11	s	CARBON 33 5% 1/2W
R204	1-247-712-11	s	CARBON 820 5% 1/4W
R205	⚠1-247-090-00	s	CARBON 20 5% 1/4W
T101	⚠1-446-911-00	s	TRANSFORMER. CONVERTER (MAIN)
T102	⚠1-421-430-00	s	FILTER, LINE
T103	⚠1-437-085-00	s	TRANSFORMER, DRIVE
T104	⚠1-446-912-00	s	TRANSFORMER, CONVERTER (SUB)
T201	1-421-432-00	s	COIL, CHOKE
	1-604-138-00	o	PRINTED CIRCUIT BOARD, PW-68
C301	1-130-591-11	s	FILM 0.0033uF 2% 100V
C301	1-130-652-00	s	FILM 0.0036uF 2% 100V
C302	1-106-347-00	s	FILM 0.0015uF 5% 200V
C303	1-123-357-00	s	ELECT 22uF 20% 50V
C304	1-123-357-00	s	ELECT 22uF 20% 50V
C305	1-130-349-00	s	FILM 0.1uF 10% 100V
D301	8-719-200-02	s	DIODE 10E2
D302	8-719-110-41	s	DIODE RD15ES-B2
IC301	8-759-904-94	s	IC TL494CN
Q301	8-729-173-36	s	TRANSISTOR 2SA733-Q
R301	1-247-719-11	s	CARBON 3.3K 5% 1/4W
R302	⚠1-247-104-00	s	CARBON 75 5% 1/4W
R303	1-247-700-11	s	CARBON 100 5% 1/4W
R304	1-247-720-11	s	CARBON 3.9K 5% 1/4W
	1-247-146-00	s	CARBON 4.3K 5% 1/4W
	1-247-721-11	s	CARBON 4.7K 5% 1/4W
	1-247-148-00	s	CARBON 5.1K 5% 1/4W
	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R305	1-249-460-11	s	CARBON 15K 5% 1/4W
R306	1-247-725-11	s	CARBON 10K 5% 1/4W
R307	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R308	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R309	1-247-132-00	s	CARBON 1.1K 5% 1/4W
	1-247-713-11	s	CARBON 1K 5% 1/4W
	1-247-714-11	s	CARBON 1.2K 5% 1/4W
R310	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R311	1-247-721-11	s	CARBON 4.7K 5% 1/4W
R312	1-249-462-11	s	CARBON 22K 5% 1/4W
R313	1-247-722-11	s	CARBON 5.6K 5% 1/4W
R314	1-247-721-11	s	CARBON 4.7K 5% 1/4W
RV301	1-226-826-00	s	RES, ADJ, METAL 300

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

VR-80 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
	1-629-479-11	o	PRINTED CIRCUIT BOARD, VR-80
ME1001A	1-520-393-00	s	METER, AUDIO
ME1001B	1-520-393-00	s	METER, AUDIO
ME1002	1-520-440-00	s	METER, VIDEO
RV1	1-238-483-11	s	RES, VAR, CARBON 5K "AUDIO CH-1 REC"
RV2	1-238-483-11	s	RES, VAR, CARBON 5K "AUDIO CH-2 REC"
RV3	1-237-713-11	s	RES, VAR, CARBON 100K "TRACKING CONTROL"
RV4	1-238-484-11	s	RES, VAR, CARBON 10K "VIDEO LEVEL"
S1021	1-516-961-00	s	SWITCH, LEVER SLIDE "AUDIO LIMITER"
S1022	1-516-961-00	s	SWITCH, LEVER SLIDE "VIDEO AUTO"

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6709-674-A	s	HEAD DRUM ASS'Y, DUH-43B-R
1pc	A-6709-615-A	s	UPPER DRUM ASS'Y, DUR-43-R
1pc	⚠1-413-069-00	s	REGULATOR, SWITCHING UR-01
1pc	⚠1-532-742-11	s	FUSE 1.6A 125V
2pcs	⚠1-532-744-11	s	FUSE 2.5A 125V
1pc	⚠1-532-745-11	s	FUSE 3.15A 125V
CN1001	⚠1-560-222-11	s	INLET, AC 3P, MALE "AC IN"
CN1002	1-561-577-21	s	SOCKET, DIP 8P, MALE "MONITOR TV"
CN1003	1-507-467-00	s	JACK, PIN 1P, FEMALE "MONITOR AUDIO"
CN1004	1-562-227-21	s	CONNECTOR, BNC, MALE "MONITOR VIDEO"
CN1005	1-562-227-21	s	CONNECTOR, BNC, MALE "TIME CODE OUT"
CN1006	1-562-227-21	s	CONNECTOR, BNC, MALE "TIME CODE IN"
CN1007	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO IN 1"
CN1008	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO IN 2"
CN1009	1-562-227-21	s	CONNECTOR, BNC, MALE "SYNC IN"
CN1010	1-562-227-21	s	CONNECTOR, BNC, MALE "RF (OFF TAPE)"
CN1011	1-562-227-21	s	CONNECTOR, BNC, MALE "VIDEO OUT"
CN1012	1-562-227-21	s	CONNECTOR, BNC, MALE "SC IN"
CN1013	1-561-045-00	s	CONNECTOR, RF 7P, FEMALE "DUB OUT"
CN1014	1-566-622-11	s	CONNECTOR, CIRCLE (R-M) 7P, MALE "DUB IN"
CN1015	1-563-029-21	s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-1/L"
CN1016	1-563-029-21	s	CONNECTOR, XLR 3P, FEMALE "AUDIO LINE IN CH-2/R"
CN1017	1-563-030-21	s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-1/L"
CN1018	1-563-030-21	s	CONNECTOR, XLR 3P, MALE "AUDIO LINE OUT CH-2/R"
CN1019	1-507-797-21	s	JACK, PHONE, STEREO "MICROPHONES CH-1/CH-2"
CN1020	1-507-854-00	s	JACK, PHONE "HEAD PHONES"
H1001	8-825-514-20	s	HEAD, CTL PP170-58 "CTL PB"
H1002	8-825-544-20	s	HEAD, ERASE EF245-58 "FULL ERASE"
H1003	8-825-578-41	s	HEAD, ACE EPS264-5803 "AUDIO/CTL/ERASE"
H1004	8-825-771-31	s	HEAD, TIME CODE PP295-58 "TIME CODE"

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
M1001	8-835-258-02	s	MOTOR, DC BHF-1915B "CAPSTAN"
M1003	1-541-376-11	s	MOTOR, DC DNR-4700A "THREADING"
M1005	8-835-179-01	s	MOTOR, DC MCB2B15 "CASSETTE COMPARTMENT"
M1006	8-835-178-01	s	MOTOR, DC FN30-T26N1E "REEL"
ME1001	1-520-393-00	s	METER, AUDIO "AUDIO LEVEL CH-1"
ME1002	1-520-393-00	s	METER, AUDIO "AUDIO LEVEL CH-2"
ME1003	1-520-440-00	s	METER, VIDEO "VIDEO LEVEL/TRACKING"
PM1001	1-454-415-11	s	SOLENOID "TAKE-UP IDLER"
PM1002	1-454-417-41	s	SOLENOID "TAKE-UP BRAKE"
PM1004	1-454-415-11	s	SOLENOID "SUPPLY IDLER"
PM1005	1-454-417-41	s	SOLENOID "SUPPLY BRAKE"
PM1006	1-454-446-11	s	SOLENOID "SKEW"
PM1007	1-454-417-41	s	SOLENOID "SEARCH"
PM1008	1-454-416-31	s	SOLENOID "PINCH"
S1001	⚠1-570-117-41	s	SWITCH, ROCKER "POWER"
	1-561-427-00	s	HOUSING, 3P
S1002	1-571-083-21	s	SWITCH, SLIDE "75ohm"
	1-215-394-00	s	METAL 75 1% 1/6W

16-4. PACKING MATERIAL AND ACCESSORIES

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-551-812-00	s	CORD, POWER
1pc	3-672-720-00	o	BAG, PROTECTION
1pc	3-733-669-01	o	INDIVIDUAL CARTON
1pc	3-733-670-01	o	CUSHION (UPPER)
1pc	3-733-671-01	o	CUSHION (LOWER)
1pc	⚠3-786-852-21	s	MANUAL, INSTRUCTION

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.

16-5. FIXTURE (OPTION)

OPTIONAL FIXTURE

Part No.	SP	Description
J-6001-820-A	o	DRUM ECCENTRICITY GAUGE (3)
J-6001-830-A	o	DRUM ECCENTRICITY GAUGE (2)
J-6001-840-A	o	DRUM ECCENTRICITY GAUGE (1)
J-6001-930-A	o	DRUM ECCENTRICITY GAUGE (4)
J-6009-830-A	o	FLATNESS PLATE
J-6026-240-A	o	ADJUSTMENT DRIVER
J-6130-010-A	o	REEL TABLE HEIGHT CHECK BASE TOOL
J-6130-020-A	o	REEL TABLE HEIGHT CHECK TOOL
J-6153-020-A	o	DIHEDRAL ADJUSTMENT DRIVER
J-6150-140-A	o	ECCENTRICITY SCREWDRIVER 6 MM DIA.
J-6153-580-A	o	PINCH LEVER ADJUSTMENT TOOL
Y-2031-001-0	o	CLEANING FLUID
2-034-697-00	o	CLEANING PIECE
3-702-216-01	o	BACK TENSION ADJUSTMENT TOOL
7-661-018-01	o	SONY OIL
7-732-050-20	o	TENSION SCALE (50g full scale)
7-732-050-30	o	TENSION SCALE (100g full scale)
7-732-050-40	o	TENSION SCALE (200g full scale)
7-732-050-50	o	TENSION SCALE (500g full scale)
8-899-999-53	o	TORQUE MEASUREMENT TAPE
8-960-015-04	o	ALIGNMENT TAPE RR5-3 SA
8-960-015-16	o	ALIGNMENT TAPE RR5-4 SB
8-960-037-02	o	ALIGNMENT TAPE RR2-1 SD
8-960-037-80	o	ALIGNMENT TAPE RR5-1 SD
9-911-053-00	o	THICKNESS GAUGE

NOTE: Please see pages 16-39 thru 16-43 for the parts that are not listed in the parts list.